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FOREWORD

AS WE move toward economic and social cooperation, we need more science. Extensive cooperation of that kind, as in the farm adjustment programs, cannot be developed through trial and error alone. That would be inviting failure. In our pioneer period and for long afterward, the trial and error process worked. It produced mistakes, but the mistakes did not drag down whole communities. Now things are different. With public agencies making decisions in farm production, land settlement, land use, etc., blind experimentation more and more must give place to knowledge. Though science cannot eliminate the risks, it can lessen them. ¶Moreover, we need more science of special kinds. All science has social value. But the application varies with social conditions. Sometimes we need mostly technology or production-science. Again we may chiefly want to know about the *distribution of* wealth. Production-science is useless if goods cannot be distributed. It is important just now to study marketing, consumption, debt, the rural-urban balance, international trade, population movements, and money matters. These problems are primary. Unless we can solve them, we shall fail eventually to solve even minor questions. The United States Department of Agriculture is devoting much attention to such studies in a research program shaped by the pressure of national wants. ¶In its long experience, the Department has learned how to attract into its service, how to retain, and how to encourage able investigators. There is really only one rule; namely, that scientific men shall be allowed to follow the truth. Science cannot be blue printed and pushed forward on a schedule. Often scientists should be under no obligation to produce immediate results. Sometimes, on the other hand, they must answer emergency calls. The great thing, in directing science, is not to regiment it; for that would be to kill it. ¶We combine organization with freedom in our political life. We are trying to do the same in the economic sphere. There is an identical problem in science. Organization is necessary in this field too. Modern science is cooperative. Scientific men cannot work in isolation without funds, equipment, and communication with fellow workers. But the organization of research, particularly in studies that affect economic interests, is difficult. It tempts us to *anticipate* findings. This temptation we must resist. Otherwise the research is spurious and the research morale declines. Science is either free or dead. In organizing research we must not destroy its nature and leave only a mechanism. ¶How to organize research without regimenting the research personnel is a problem that needs further study. From the organization to the regimentation of science, the descent is easy. It is imperative to avoid this calamity. The principal thing that distinguishes the progressive from the decadent countries is mental freedom; and in science this quality is indispensable. As scientific people enter the public service in increasing numbers, in response to the need for research in economic and social engineering, we should take special care to maintain the conditions necessary to sound work. ¶This Yearbook contains evidence, I believe, that the United States Department of Agriculture recognizes what is necessary. Readers will observe that the articles, while generally expressing a consensus among specialists in the subjects discussed and in related fields, do not exclude individual opinion and individual findings. The Department does not impress a dead uniformity on the writings of its scientific staff. It encourages freedom of expression, as well as freedom of inquiry. Better a difference of opinion within the family than an imposed and therefore worthless unanimity. This volume indicates that science can be organized without ceasing to thrive.

HENRY A. WALLACE,
Secretary of Agriculture.

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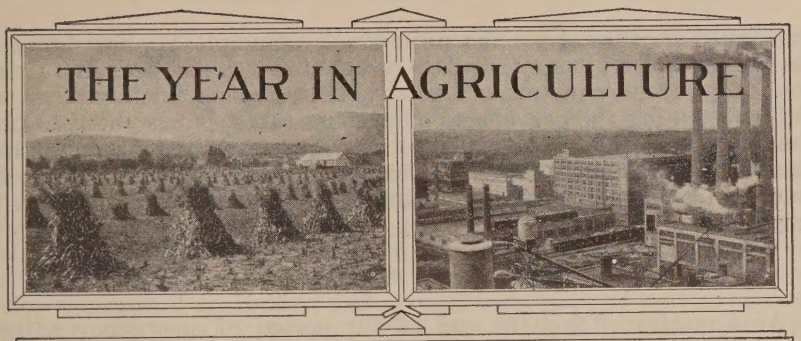

THE SECRETARY'S REPORT TO THE PRESIDENT

WASHINGTON, D. C., *December 12, 1934.*

To the PRESIDENT:

TOWARD A BALANCED ABUNDANCE

Experiments of interest and concern to the public usually meet with objections from opposite poles. Some people say the experiments will not work, and others that they will work too well. It was said of Stevenson's locomotive that it would not run and that it would run too fast. It was said of the Agricultural Adjustment Act that it would not control production and that it would control production to the point of scarcity. Two seasons of trial have disposed of the first objection. Everyone now recognizes that in the combination of benefit payments and processing taxes agriculture has an effective means of adjusting its production to the needs of the market, a method which overcomes the obstacles that wrecked all previous efforts to accomplish that end. This new method rewards principally those who take part in production adjustments. Previous methods had exactly the opposite result. They benefited outsiders and forced insiders to pay the costs. So successful has the new method proved, that we hear louder than ever the objection that it will work too well for the good of the community, that it creates want and not welfare.

This objection has no better foundation than the one it supplanted. In proof we need simply to review the action taken and the results achieved up to the present; for the story shows why the Agricultural Adjustment Act succeeds in adjusting production to the demand and why it would not succeed were it used to reduce production below that point. Naturally the first steps involved reducing production. In 1933 agriculture had enormous surpluses of wheat, cotton, tobacco, and hog products, which had accumulated as a result of wartime expansion, economic nationalism, strangled foreign trade, the disappearance of foreign markets, and reduced domestic consumption. Prices had fallen far below costs. Merely to avert farm ruin, it was imperative to eliminate the surpluses. As matters then stood, production control seemed to be synonymous with crop reduction. But it was never contemplated that reduction, once started, should be

continued indefinitely. The adjustment principle applies not only on the downturn; it may regulate production to a stable or to a rising demand, and may maintain a good balance among farm enterprises. After lessening the bad effects of past mistakes, it may help to prevent new mistakes. It would be a serious mistake to reduce farm production constantly. Such a course would raise prices temporarily, but would restrict consumption, and create new farm competition at home and abroad.

End of Emergency Adjustments in View

As a matter of fact the end of our period of emergency adjustments, of drastic reductions in the farm output, is coming into view. In the case of some commodities, such as wheat, corn, and hog products, the domestic surpluses have largely disappeared, as a result partly of crop control and partly of weather conditions. As we advance in the adjustment of supply to existing demands, the basic principle of the Agricultural Adjustment Act stands out more clearly. It is production adjustment, which does not mean reducing the production of everything, but producing different commodities in the proper amounts and proportions. Sometimes we need reduction, sometimes expansion. As markets improve, farmers must be ready to increase their output. In doing so, however, they must keep step with the growth of demand and not run ahead of it. They must be on guard against piling up new surpluses. Cooperative action as prescribed in the Agricultural Adjustment Act affords the means.

Adjusting production downward when demand falls is not new. It is the normal, and in fact, the compulsory course. Industry follows it more generally and more successfully than does agriculture. Manufacturers immediately check or cease production when they can no longer sell their goods. They do so largely at the expense of labor, which loses its employment. Agriculture cannot quickly readjust its production downward for reasons familiar to everyone. Disused farms suffer more than disused factories. Planting and livestock breeding are annual matters; factory production can be adjusted almost from day to day. Also, farmers acting individually work at cross purposes. And then, too, when prices fall, some farmers try to recoup by having more bushels or bales or head of livestock to sell. Cooperative planning under Federal guidance can in part overcome these difficulties. It provides a definite mechanism through which farmers can work together for the control of production. Even with this assistance, however, farmers cannot regulate their output as accurately as can manufacturers. Agriculture cannot create scarcity at will, because the motive to keep men and land out of production weakens as surpluses disappear.

Need of Permanent Control

Essentially, agriculture needs production control to prevent the mass swings that lead to recurring cycles of over and under production. Adopted as an emergency device, a means for averting irremediable disaster through quick, concerted reduction of output, the

control principle has nevertheless permanent as well as emergency uses. This we can infer from a glance at the conditions that existed in agriculture long before the present depression. Both before and after the war, recurring cycles in production blocked steady farm prosperity. Adjustment to demand through blind competition caused farmers to rush in and out of different enterprises. Whenever any crop showed a profit, the producers grew more until the profit had been stamped into the ground. They did so to the greatest extent during and after the war; but under so-called free competition they always do so to some degree. Cooperative adjustments offer a means of correcting this normal handicap, as well as of dealing with abnormal surpluses. This use of the adjustment principle is the natural sequel to the emergency adjustments.

We can see the need by glancing at the record of some past production cycles. Thus the hog cycle carried hog slaughter from 62,000,000 in 1920 up to 80,000,000 in 1923, and then down to 66,000,000 in 1926. In the meantime hog prices varied from below $7 a hundred pounds in 1923 to $14 in 1926. The beef cycle carried cattle slaughter from 12,000,000 in 1921 to 15,000,000 in 1926 and then down to 12,000,000 again in 1928. Steer prices increased from $9.20 a hundred pounds in 1926 to $15 in 1928. A new upward movement in cattle numbers accounts partly for the low cattle prices of recent years. Wide swings in potato production caused prices to fluctuate widely. Between 1926 and 1928 the production increased from 323,000,000 to 427,000,000 bushels and the farm price per bushel declined from $1.42 to 62 cents. Great swings in cotton acreage were common. From 1922 to 1926 the cotton acreage jumped from 34,000,000 to nearly 49,000,000. The farm prices for cotton varied from 23 cents to 12½ cents a pound in 1926—a very low price for that time. Many other products showed similar fluctuations in production and prices.

Farming would return to these erratic and senseless swings if we dropped the principle of cooperative adjustment. The swings due to weather are wide enough without having them further complicated by human miscalculation. Without means of coordinating their production, farmers could not for long keep a satisfactory balance between production and consumption. They can do so with the machinery provided in the Agricultural Adjustment Act with no risk that production control will lead to monopoly. There are two very strong safeguards: (1) The natural desire of farmers to take advantage of real opportunities for profit; (2) the fact that supply is only one of the factors that determine price. Demand is equally potent. This is particularly true of dairy products, fresh fruit and vegetables, and meats. Cotton prices vary with demand about as much as with supply. In the case of wheat, potatoes, and rice, supply seems to be the dominating price-making factor. But even in the case of these commodities there is a limit to the extent to which farm income can be influenced through supply adjustments. Farm income depends vitally on consumer buying power, and gains hereafter will depend increasingly on industrial recovery. Agriculture cannot achieve prosperity by itself. Such measures as the housing act, the bankruptcy measure to scale down impossibly heavy debts, the Reconstruction Finance Corporation's loans to industries, and recent changes in the N. R. A. price policies are very important to farmers.

Fair Adjustment Retains Consumer's Good Will

That farm recovery depends essentially on adjusting production to market needs rather than always on cutting it down appears in other ways. Removing surpluses benefits both producers and consumers. It restores fair exchange value to farm products and enables farmers to buy nonfarm goods. Consumers gain nothing in the long run by getting farm goods at less than cost. In one form or another they have to pay the full bill eventually. Agriculture must be maintained; and to maintain it the prices paid for farm products must cover the costs. Consumers do not escape this necessity by not paying the necessary prices immediately. They simply postpone the payment to their disadvantage. What they save on current prices they have to make up in the future. This is so generally recognized that public opinion almost unanimously approves reducing production to remove surpluses. It would not equally approve adjustments toward scarcity. Nonfarmers would instantly rebel, and with reason, for it is one thing to use the power of the Government to win justice for agriculture and quite another to use that power unfairly.

Furthermore, the methods permissible under the Agricultural Adjustment Act do not lend themselves to the creation of scarcity. They make a distinction between the cooperator and the noncooperator in production adjustments. Through a benefit payment on his allotted share of the domestic production, the former receives a greater net income than the latter. In wheat, for example, cooperators reduced their acreage by 15 percent in 1934. With an average yield of 11 bushels, and a farm price the same as last year's, the cooperating farmer stands to get $855 from 85 acres, while the noncooperating farmer will receive only $814 from 100 acres. In 1933 the cooperating cotton farmer growing 75 acres received about $1,707 for the lint. For the lint from 100 acres the noncooperating farmer received only $1,663. With hogs at an average farm price of $11 per head, the cooperating farmer, after reducing his corn production by 25 acres and his hog production to 112 head, would take in $1,938 for his hogs. The noncooperator would receive only $1,650 for 150 head. In the case of burley tobacco at present prices the signer gets $750 for the product of 6 acres whereas the nonsigner gets only $584 for the product of 10 acres. In addition, the cooperating farmers save on fertilizer, twine, and other expenses of production. Obviously, however, the relative advantage would diminish were production reduced enough to send prices skyrocketing. In that event the noncooperator would make more on full production than the cooperator would on restricted production. Soon there would be a new surplus. To reduce production excessively would put a premium on noncooperation, and wreck the project.

Essentials of Permanent Recovery

As already noted, the towering export surpluses are mostly gone. But the 50,000,000 acres formerly devoted to production for the foreign market, though mostly held out of use in 1934, are still in farms. We must not forget the existence of these surplus acres. Normal growing conditions, in the absence of Government help in

agricultural adjustment, would build up the farm surpluses again in 2 or 3 years. For the time being, however, it is necessary to focus our attention largely on the disappearance of the farm surpluses, and on the resulting improvement in agricultural prices, particularly in the prices of the great export crops. To the extent that current price improvement is due to the drought it is impermanent. What are the requirements of permanent farm recovery?

One of the outstanding long-time objectives of the national administration is to lay the foundation for an era of abundance. It is therefore essential that the Agricultural Adjustment Administration, in mapping its policy for 1935 and 1936, should consider to what extent agricultural and national prosperity can be advanced by a restriction of the farm output greater than that necessary to compensate for loss in foreign markets. Can true prosperity be had for agriculture or for the country as a whole by creating domestic shortages or continuously restricting production? Ninety percent of the farmers will say no. Yet some farmers may come to believe that their prosperity depends on man-made scarcity.

In the emergency we had thoroughly unbalanced price and production relationships between agriculture and industry. Prior to 1933 agriculture did not reduce its production appreciably, but city industries reduced their production greatly. From 1929 to the spring of 1933 farm production dropped only about 6 percent while farm prices dropped 63 percent. In the same period the output of farm implements dropped 80 percent, of motor vehicles 80, of cement 65, of iron and steel 83, of auto tires 70 percent. Yet with these great restrictions of industrial output there was relatively little reduction in industrial prices—farm implements dropped only 6 percent in price, motor vehicles 16, cement 18, iron and steel 20, and tires 33 percent. The search for maximum profits was tending to develop a "scarcity economics", in which perennially the output of industrial production was reduced unduly, while prices remained so high that many consumers had to stay out of the market.

By the spring of 1933 the whole relation between agriculture and industry was thoroughly out of adjustment. Agricultural production was practically as high as ever while industrial production was at an extremely low level; for prices the situation was reversed—agricultural prices were away down, yet industrial prices had dropped relatively little. The basic recovery problem was to raise industrial production without raising those industrial prices which had not fallen, and at the same time to raise agricultural prices without reducing production beyond the need to compensate for the decline in the foreign market and eliminate surpluses.

Since May 1933 agriculture has had the help of the Government in controlling production for the purpose of raising prices. The Agricultural Adjustment Act states that the aim of production control is to restore agricultural prices to their fair relationship with other prices and to continue such adjustments as will maintain that balance. During the past year drought and agricultural adjustment together have largely taken care of the surpluses. This has brought prices to the farmer a long way back toward parity yet without as yet curtailing domestic consumption.

Limitations of Production Control

There is reason to doubt whether agricultural income as a whole can be restored completely to parity merely by production control. While farm prices might be further raised by restricting domestic consumption along the lines of "scarcity economics", it is doubtful if this would appreciably raise farm income. One of the major elements in the restoration of agricultural parity is an increase in the purchasing power of the industrial population. A second major element is a reduction in the prices of industrial products that have advanced too far. When the industrial production and pay rolls are increased the industrial population is in a position to buy more food at parity prices. When industrial prices are lowered the farmer is in a position to buy more industrial goods with his money income. Thus, higher farm income and a higher standard of food consumption for the industrial population both turn on the employment and purchasing power of the industrial population. The farmer's great need now, as he continues his efforts to produce a balanced output, is that of getting full employment to the industrial population in order that consumers may be able to pay fair prices for higher consumption. Necessary as it was to meet the curtailed foreign markets and the surplus crisis of 1933, reduction in output is only a very partial and paradoxical answer in the long run to the crying need which is briefly expressed in the phrase, "balanced abundance."

The problem is to retain fair and reasonable profits without falling into the pit of "scarcity economics." As long as farmers had no power to control the total production or price of their products they were not seriously concerned with the problems of "scarcity economics." But now that farmers enjoy powers which are fairly comparable with those of city industries with respect to production and price control, it becomes necessary for all of us to spend more time thinking about the road to "balanced abundance" instead of "competition for profits induced by scarcity."

SOCIAL COSTS OF FARM ADJUSTMENT

Amid the rush of events connected with farm readjustment, it is difficult and yet important not to be overwhelmed by things immediate. We think about farm prices and farm incomes. We want to narrow the spread between actual and parity prices. And we judge the success or failure of crop control accordingly. But this is an inadequate test. It reckons only receipts and ignores expenses. There are costs to consider as well as returns. These costs, as nearly as possible, should be estimated in terms human as well as monetary, social as well as economic. Moreover, they should be compared with the probable costs, in similar terms, of any other available means of dealing with the farm problem. Readjusting production is necessary for lack of means to increase the demand. If we increase the purchasing power of the domestic market or of the foreign market or of both together, crop restrictions can be relaxed. Whichever course we finally adopt, it will involve costs, which will fall not wholly or even largely on any one group, but on the entire Nation. Both justice and expediency urge us to compare the alternatives.

Among the costs of readjusting production downward, which we should consider before figuring the costs of widening the market, there are intangible elements. Some of these may prove very important. Prominent among them is the social, as distinguished from the administrative, cost of regulating agriculture. Some call it regimenting. It is well to call a spade a spade; but the term "regimentation" implies compulsion from above, whereas the farm adjustments in which we are engaged depend essentially upon the choice of the participating farmers. Strictly, the adjustment of farm production under Federal guidance involves not regimentation but merely social discipline. But this discipline may carry us far along new paths if we do not find an efficient substitute. It will involve unexpected and incalculable costs.

For example, it will involve a restriction of agricultural opportunity. Farmers may not produce as much of certain things as otherwise they would. Men not now in farming may not enter it unconditionally. The Bankhead Law penalizes the production of cotton above a certain quantity; and the Kerr-Smith Act applies a similar principle to tobacco. Processing taxes affect the conditions under which cotton, wheat, tobacco, and corn and hogs may be produced. Milk agreements help existing dairymen, at the cost of a restraint upon new competition. These are intended consequences. But persons kept out of agriculture may properly demand compensation. The regulation of agriculture for the benefit of insiders creates responsibilities toward outsiders. It involves intangible costs, not the least of which is a national obligation to protect all the groups affected.

No Escape Through Ruthless Competition

The alternative course is the competitive elimination of men and acres. This would mean endless distress, urban as well as rural, for men driven off the land would demand doles. Moreover, it would not obviate the need for social discipline. It would increase the need. Piling agricultural unemployment upon urban unemployment would create an immense new problem of poor relief, which would necessitate regimenting the recipients. It would flood the labor market, so that the Government would be forced to regulate it. We could not avoid economic regulation merely by not doing what we are now doing for agriculture. We might get a different kind of regulation, but that is all. Only by creating more employment, both in agriculture or in industry or in both, can we remove the need for economic controls. Returning agriculture to ruthless competition is not the way.

Meantime, pending the discovery of means adequately to revive demand, we must reckon the costs of regulation. Adjustments in one farm enterprise necessitate adjustments in others. Land can seldom be left idle. To withdraw land from one crop usually means putting it into another; if not into a competitive cash crop, then into something that will affect the balance of production eventually. Cornland planted to legumes will become more fertile. Land taken out of cotton or tobacco may produce food for the farm family, and thus affect the market for foodstuffs produced commercially. Agri-

cultural regulation tends to become general, and to involve related industries such as flour milling, meat packing, and dairy processing. Withdrawing submarginal land from production creates additional responsibilities. Even partially to refuse men access to the land obligates the Nation to offer alternative opportunities.

On established farms, regulation involves an operating cost. It affects the size of fields, the use of machinery and labor, the intrafarm crop balance, and the relation of the farm overhead to the total income. Against the gain in prices, this item must certainly be reckoned. To reduce production greatly, without raising the unit costs, is extremely difficult. Extensive central planning interferes greatly with established farm practice, and obliges farmers to learn new ways. As Mark Twain said, there is no proficiency without apprenticeship, and no pay for apprenticeship. Regulating agriculture hampers its movements and checks enterprise. This is a debit item not to be ignored. Compared with such intangibles, the money costs of farm adjustment are secondary.

Economic Democracy

Viewing these restrictions and social costs, many honest thinkers believe our farm programs conflict with the essentials of democracy. If that is the case, they should be dropped.

But man's right to live transcends all other considerations. In the present state of the Nation, we must enlarge our idea of democracy, or risk losing what democracy we have. A purely political democracy would not survive a complete economic breakdown in the United States any more successfully than it has done elsewhere. The farm program looks toward an economic democracy thoroughly in harmony with our political democracy.

Farmers demonstrated conclusively that they wanted the Agricultural Adjustment Act. Through the Congress, the country concurred. The administration obtained the support of large majorities before putting any of the acreage adjustments or marketing agreements into effect. When farm opinion failed to unite on a proposed dairy program, the administration withdrew it.

Farmers themselves largely administer the adjustment programs through county control associations. These bodies help to make as well as to administer adjustment policy. Thoroughly democratic in form and spirit, the associations are effective instruments in economic self-government. They began by adjusting county and individual allotments. They were concerned at first about getting Government checks out to farmers as quickly as possible. This preoccupation soon gave place, however, to a deeper interest in the purposes of the whole undertaking. The committees now study crop supply and demand conditions, and price relationships. They bring general economic information to bear on local farm problems. They are helping the administration in taking a referendum on new corn-hog adjustment plans.

These local associations cannot finally formulate and administer national programs. That duty logically belongs, after all groups have been consulted, to the adjustment administration. But without the help of the county associations, the program could not be made effective. In thus decentralizing administrative work, and at the

same time creating new channels through which farmer opinion may find expression, the Agricultural Adjustment Act promotes true democracy.

As is well known, participation in any acreage-adjustment program was originally voluntary. Later, under special legislation relating to cotton and tobacco, features penalizing noncooperation were introduced. Farmers themselves demanded this change. The Agricultural Adjustment Administration preferred to keep all programs essentially voluntary. It is unnecessary to coerce small minorities, and difficult to coerce large ones.

There is a worse danger to democracy than the extension of democratic principles to farming. Failure to solve economic problems is a worse danger. Such failure leads to class strife, and class strife to civil war. In civil war, whatever the outcome, democratic government disappears, at any rate for a long time. Recent history shows that at a certain point of misery and destitution nations cease to think about liberty, and think only about bread. Then they are ripe for dictatorship. In the United States we have an opportunity to retain our liberty and to strengthen our democratic institutions, while at the same time improving our material circumstances. We can do this by enlarging our concept of democracy and giving it scope in economics as well as in politics.

The exact methods of achieving economic democracy are by no means settled. How far the principle of majority rule applies legitimately to the control of farm production is not yet established, either through experience or discussion. But we cannot rule it out in advance as being inconsistent with democracy. We should certainly give the benefit of any doubt to the voluntary principle, while not regarding that principle as absolute. And we should encourage discussions, far and wide. We should also consider every alternative to the present adjustment programs.

FOREIGN TRADE IS ONE ALTERNATIVE

One alternative is the recovery of foreign trade. What will an effort to accomplish that entail? American agriculture was developed for trade with the world. Only in international trade can it freely move. Foreign buying of American farm products, however, requires foreign buying power in the American market. Such buying power existed before the war because foreign countries, principally in Europe, had invested heavily in American securities. During and after the war it existed because we lent money to Europe. Neither of these means of restoring our farm exports is likely to be quickly reestablished. There is another means. We may offer foreign countries, particularly European countries, a market in the United States for certain products, in exchange for a market for American wheat, cotton, tobacco, hog products, and fruits. We may lower our tariff wall, in return for a better market abroad; opening the door to foreign goods may displace certain domestic articles. That is the first cost to be considered. Against it must be figured the probable value of the compensating benefit.

What it will cost American industry to share the domestic market with foreigners depends partly on the nature of the goods imported, and partly on the amount of domestic purchasing power available.

Selected goods could be imported liberally into a prosperous America, without hurting the American manufacturer. That we know from what happened before the depression. In the calendar year 1929, during the greater part of which business was active in the United States, we imported merchandise to the value of $4,399,000,000. Exports exceeded this figure by $842,000,000. For the great bulk of the exports we took payment in imports, and no one complained. Because we did so American industry had more business than it could have had otherwise. In the ensuing depression imports and exports declined together. Thus in 1932 the merchandise imports totaled only $1,323,000,000; but the exports were down also—to $1,612,000,000. Buying less abroad did not give us proportionately more business at home. Conversely, an increase in imports now would not cut down but on the contrary would increase our total business. The exports would increase with the imports.

But the foreign-trade program would involve the risk of producing results other than those expected. We cannot know in advance the probable effect on prices and employment in industry. Nor can we foretell precisely the compensating benefit to agriculture. Asking industry and labor to make sacrifices for agriculture demands some assurance that the farmer will benefit. The purchasing power which foreigners would obtain in the United States market were they permitted to sell more goods here might be left on deposit, or invested in American securities, or devoted largely to the purchase of nonagricultural goods. That would leave unchanged the need to regulate agriculture. Formerly, when Europe had the means to do so, it bought farm goods heavily in the United States. Will it do so again?

Changing Relationship of the Hemispheres

This question does not admit of a dogmatic answer. The relationship between the Old and the New World has changed greatly. In the nineteenth century, when the United States was Europe's bread basket, this country took European goods readily in exchange for its cereals, meats, and fibers. It needed what Europe could supply. The need is smaller now. Other agricultural surplus countries, notably Canada, Argentina, Australia, and India, have more need of Europe's industrial goods. Against the competition of these countries, backed by their willingness to buy where they can sell, the United States must struggle. We cannot fully overcome this handicap merely by lowering our tariffs. Spontaneous reciprocity has advantages over the contrived variety. The cold fact is that while we need Europe greatly as a market, we do not need it greatly as a source of supplies. This is a hurdle to be leaped and not evaded.

Another difficulty is Europe's battle for self-sufficiency. Great Britain is relying more on Empire sources of foods and is encouraging Empire-grown cotton. France is practically self-sufficient in foods; Germany is nearing self-sufficiency. Last year Germany produced a slight excess of carbohydrates over its domestic requirements and about all the proteins it required. In fats, however, it remained heavily dependent on imports. Italy has forged ahead in food production but still depends upon imports for 13 to 18 percent of its food supply, measured in calories. The great Italian

deficit is wheat. Even countries like the Netherlands and Belgium, which cannot become self-sufficient in foods, buy abroad less than they would if they could export factory goods freely. But Europe is getting used to this increased self-sufficiency and has vested interests therein. Enterprises fostered by it cling to life. They have powerful defenders.

Fortunately, a change would benefit both hemispheres; for on both sides of the Atlantic the principle involved is the same. Each continent tries to live at home because it is difficult to sell abroad. In Europe the shoe pinches mainly industry; in the United States it pinches mainly agriculture. Shifting the pressure partly from one foot to the other in both hemispheres, simultaneously but in opposite directions, should ease the total strain. More international trade would create new purchasing power and would promote efficiency. Wresting trade from its natural channels, as we now do, adds to the operating costs of every farm and every factory. It violates the principle of comparative advantage. For every interest which the system nourishes, another interest, perhaps a more efficient one, dies. Europe has suffered more havoc of this kind than the United States, and has as much interest in discarding the strait-jacket.

Doubtful Value of So-Called "Self-sufficiency"

Europe's motives for working toward self-sufficiency are the fear of war and the necessity to correct an unfavorable balance of trade. Probably the economic motive is the stronger. National defense requires many things besides foods; many things which Europe must import, such as oil, rubber, cotton, and various minerals. In these articles Europe can never be self-sufficient. They can be stored; but first they must be purchased, and self-containment makes their purchase difficult. Increased self-sufficiency in foods does not really strengthen Europe's defenses, because it involves a reduced power to get other military necessities. But even in food, with the most prodigious efforts, Europe cannot become nearly self-sufficient. It still has to import something like 500,000,000 bushels of wheat annually. The greatest possible progress in self-sufficiency cannot free Europe from the need of imports, or allow it to ignore a blockade. Group interests that profit from the movement toward self-sufficiency stress the insurance feature for more than it is worth. They want to offset the economic drawbacks, which are tremendous. Europe's struggle for self-containment is costly, painful, and relatively inefficient. It subjects the urban population to a fearful strain. Limiting the importation of foods makes the food supply less abundant, less varied, less nourishing, and less cheap. It forces Europe to depend increasingly on cereals in order to get more calories from the soil and to pay more for a poorer living.

That is only half the story. By refusing to buy foodstuffs abroad, Europe loses its market for factory goods abroad. Thus for a thoroughly illusory self-containment the people pay in a reduced standard of living and in reduced employment. A majority would welcome a chance to exchange industrial goods for foodstuffs. This would involve some agricultural readjustments in Europe, just as it would involve certain industrial readjustments in the United States. But these would not be excessive. By importing cereals,

including feed grains, Europe could raise more meat and dairy products, and maintain larger rural populations. In the United States, on the other hand, the resulting improvement in farm buying power would strengthen the manufacturer's domestic market. There would be more business all around.

Restored Trade Would Be Mutually Beneficial

Europe needs the farm goods we have to sell, and foregoes them only from necessity. The advantage to the American farmer of enabling Europe to buy here once more would be enormous. American agriculture depends far more on foreign trade than does American industry. From 1921 to 1930 this country exported more than 13 percent of its farm production, and the trade constituted about a third of its total exports. Moreover, this third represented only primary agricultural products such as wheat and flour and cotton. It did not include many agricultural products elaborately manufactured and exported as manufactured goods. Since 1929 our farm export trade has declined in value nearly 60 percent. Restoring it substantially, through some increase in industrial imports, would give agriculture new life.

There would be no countervailing penalties upon industry. Broadly agricultural trade can increase only through an increase in the number of consumers. This is a consequence of the often-mentioned limitations of the stomach. Hence the only feasible alternative to the recovery of the agricultural export trade is the contraction of agriculture. No similar contraction of industry would result from an increase in industrial imports. For many industrial products the potential demand is boundless. Upon agricultural consumption the final limitation is physiological. Upon industrial consumption the final limitation is simply purchasing power. Whatever increases purchasing power increases the manufacturer's market. Hence the admission of foreign goods into the American market, since it would be accompanied by an increase in the purchasing power of the farmers, would handicap industry far less than the alternative policy of enforced farm contraction would handicap agriculture. Ultimately, indeed, the revival of normal international trade would permit great industrial expansion, besides removing much of the so-called "regimentation." Industry as a whole has as much to gain from this program as agriculture.

The long-continued decline in the value of our agricultural exports was checked in the marketing year 1933–34, in which domestic exports of agricultural products, exclusive of forest products, were valued at $794,000,000, compared with $590,000,000 in 1932–33, $752,000,000 in 1931–32, and an average of $1,792,000,000 during the 5 years 1925–26 to 1929–30. This gain in the value of exports resulted from the devaluation of the dollar and from the influence of reduced production on prices. The volume of exports, on the other hand, continued to decline. On the basis of 100 representing the average exports of agricultural products in the 5 years immediately preceding the war, the export volume in 1933–34 stood at 83, compared with 85 in 1932–33 and 98 in 1931–32.

RECIPROCAL TRADE AGREEMENTS

The Federal Government's program of reciprocal trade agreements looks toward the expansion of our foreign market for both agricultural and industrial products. Its success will depend on the extent to which we and the countries with which we seek to negotiate are willing to make reciprocal concessions. Foreign countries must give us substantial opportunities to sell them products, agricultural and industrial, which we can supply on a competitive basis. We must offer tariff reductions which will actually permit foreign countries to sell more of their products to us. Nothing can be achieved by making only such arrangements as will involve no sacrifice on either side.

It will be most difficult to get concessions on commodities which the importing countries produce in large volume. In such cases the foreign country, in making a real concession, must expect to contract its own production. It will naturally demand important compensating advantages. Of all agricultural products, it will probably be most difficult to obtain concessions on wheat. Even in the case of wheat, however, there is reason to hope that certain countries that have been striving for self-sufficiency and, in fact, in the last 2 or 3 years have actually achieved it, may conclude that such a course is uneconomical and likely to be disastrous eventually.

Foreign trade restrictions in hog products have fostered some increases in hog production in our foreign markets. Also, however, they have reduced consumption by raising prices. It should be easier to get concessions on hog products than on commodities the production of which has been expanded more.

Opportunities With Fruit and Tobacco

The best opportunities for trade bargaining concern fruit and tobacco. Trade barriers in importing countries have not caused any great increase in the production of fruit either in the importing countries themselves or in countries whose exports are not affected. In many cases our fruit exports have been subjected to restrictions, not in order to protect producers of the same products, but because they are considered luxuries. They are either taxed heavily for revenue, even though in some cases a lower tax would yield a larger return, or are largely excluded from some countries that desperately need to balance their international payments and seek to do so through restrictions on imports.

Tobacco has always been heavily taxed, but the taxes in many cases have risen to a point at which they reduce consumption. In a few countries, in Italy for example, domestic production has been stimulated, and it will be difficult to regain the market we have lost. In other countries tobacco production is less important, and lower import taxes might well result in increased imports from the United States.

Our cotton exports cannot gain directly from tariff bargaining. Most of the large foreign cotton-manufacturing countries do not produce cotton within their borders and only to a limited extent in their colonies. They are glad to get supplies at the lowest possible

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cost. Only one country, Germany, has restricted imports of American cotton. Germany did so not for the protection of her domestic interests; on the contrary, German textile manufacturers suffered. The reason was entirely Germany's inability to pay for the necessary imports. Indirectly, however, cotton would benefit greatly from a revival of international trade.

Agreement Concluded With Cuba

Progress is being made in the organization of the tariff-bargaining work. Interdepartmental committees have been established on which this Department is represented. The State Department has announced an intention to negotiate trade agreements with many countries in Latin America and western Europe. Only one agreement has been concluded so far under the new tariff-bargaining law. This was signed with Cuba on August 24, 1934. In one fundamental respect it differs from the arrangements that may be concluded with other countries. In the Cuban agreement, the United States and Cuba grant to each other exclusive preferences on import duties which are not extended to other foreign countries. In general, under the terms of the tariff-bargaining law, the policy will be pursued of extending generally to all countries the concessions made on import duties by the United States. This is not true in the case of Cuba, to which we give preferences ranging from 20 to 50 percent, and Cuba extends to us preferences from 20 to 60 percent from the general duties applicable to other countries.

Concessions of Real Value to United States

The agreement with Cuba secures concessions that will be of real value to American agriculture. Lard is our most important agricultural export to Cuba. Only the United Kingdom and Germany have in the past surpassed Cuba in importance as a market for American lard. Our exports of this product to Cuba declined from 80 million pounds in 1929 to 11 million pounds in 1933. The principal factor contributing to this decline was the increase in the Cuban duty on lard from the equivalent of $1.45 to $9.60 per hundred pounds. In addition Cuba imposed a consumption tax amounting to $1 per hundred pounds on lard. The total charge was practically prohibitive. By the terms of the agreement with Cuba, however, the Cuban duty on lard has been reduced to $2.27 per hundred pounds; it will be reduced to $1.86 on September 3, 1935, and to $1.45 per hundred pounds on September 3, 1936. Cuba also agreed to eliminate the consumption tax by the last-named date. Similarly, favorable concessions were made on the duty on vegetable oils, notably cottonseed oil, which is an important item in our exports to Cuba. Cuba agreed to reduce the refined cottonseed oil duty from $6.07 to $1.36 per hundred pounds. Other agricultural products upon which substantial duty reductions or increased preferences were granted by Cuba were wheat flour, pork, potatoes, rice, and canned fruits and vegetables. Cuba also made substantial reductions in a long list of manufactured articles. These reductions, to the extent that they result in increased exports to Cuba of manufactured goods

and increased employment in our manufacturing industries, will redound to the benefit of agriculture.

In return for these concessions on the part of Cuba, the United States agreed to a reduction in the import duty on sugar, a reduction in the duty on tobacco and rum, and seasonal reductions in duties on certain fruits and vegetables. In the case of sugar and tobacco the reductions in the United States duties applicable to Cuba are accompanied by import quotas which limit the quantity that Cuba can place in this market. The quota on sugar was provided for by legislation passed by the last session of Congress. The quota on tobacco is provided for specifically in the agreement.

In providing for these quotas an important principle affecting the agricultural adjustment program has been established, namely, that with respect to products the production of which is being restricted or curtailed in the United States, there should be a corresponding restriction or curtailment in the importation of like products from foreign countries. This is a matter of logic. We cannot be in the position of reducing our own production in order to dispose of unwieldy surpluses and to obtain a fair return for our farmers and at the same time permit foreign countries to increase their exports to this market and take up the slack arising out of reduced domestic production. With respect to both sugar and tobacco, the agreement provides that if the adjustment program of the United States is abandoned, or substantially abandoned, the import duties will revert to those in effect at the time of the signing of the agreement.

The reductions in duty that Cuba has made, combined with an improvement in their purchasing power resulting from more favorable returns on their principal products, should permit the United States to regain a substantial part, if not all, of its lost market in Cuba.

THE DROUGHT

The drought of 1934 was the worst ever recorded in this country. It extended over 75 percent of the area of the country and severely affected 27 States. It cut down the yields of food grains and of cotton, reduced tremendously the production of feed, forage, and pasture, and necessitated a heavy reduction in livestock numbers. Food supplies for the Nation remained sufficient. There were on hand large stocks of bread grains and of several other food products, the production of canning crops was above normal, fruits and vegetables were fairly abundant outside the drought area, and the supply of meat, dairy, and poultry products was adequate for the rest of the calendar year. Local supplies of certain food products, however, were short in many areas. Reflecting the shortage of feed grains and roughage, there will be a sharp reduction in market supplies of meat and other livestock products in 1935, even if the growing season should be normal. In the areas hardest hit farmers suffered a decline in their income. For the country as a whole, however, the drought affected farm income but little. Higher prices tended to offset the reduction in marketings, and farm income, including benefit payments, for the entire country showed a substantial increase over the previous year.

Beginning in the early spring, the drought first became serious in the Northwest. From eastern Montana, the Dakotas, and Minnesota it spread to the Southeast, to the South, and to the Southwest. By the end of May it had become the most extensive drought on record in this country. It was severe in part of the Ohio Valley and the central and upper Mississippi Valley, throughout the central and northern Plains, over most of the Rocky Mountain sections, and in the Great Basin of the West.

No Indications of Permanent Change

There are no indications, however, that the drought constituted a permanent change to desertlike conditions in the Midwestern States. The Weather Bureau's records suggest that extreme drought in particular regions may be expected to occur at intervals of 30 to 40 years. Rain or snowfall tend to run in alternating periods of above and below normal. Each period covers a long time, and the periods are not uniform in length. The trends show up clearly, however, when we study the records graphically, and draw curves to smooth out yearly variations. In the long run the precipitation records vary in a wavelike progression. The difference in the rainfall in the periods of comparatively heavy precipitation, as compared with that of the periods of lighter rainfall, is marked. Moreover, the trends are rather uniform from maximum to minimum and vice versa. For the central Mountain States the records show a well-marked tendency to decreasing rainfall during the last quarter of a century. On the other hand, in much of the South, especially the Southeast, until recently the tendency was toward heavier rains.

In the central Mountain area the last maximum appears for the 10 years up to about 1908, or about 25 years ago. Since then a 10-year moving average shows a rather regular decrease. Thus the average precipitation in Minnesota for the decade ended with 1933 was only a little more than 23 inches, as compared with an average of 29.5 inches for the 10 years ended with 1908. The later decade had nearly 30 percent less rainfall than the earlier one. In a region where the normal precipitation is rather small such a decline is obviously very important. Centering in Minnesota, this decline covered the northern Plains to the west, especially the Dakotas, and extended to the western part of the Lake region on the east. About midway between the long-interval rainfall depressions appear successive years of comparatively abundant rains. There is nothing to indicate that history will not repeat itself in this respect. In another temporary period, not now predictable, much heavier rains undoubtedly will prevail.

Drought in the central valley began early last year. It did not immediately cause any general falling off in production, though we had a short wheat crop and a short hay crop for the country as a whole. But when the 1934 drought developed its results were far worse than they would have been had the season begun with normal moisture in the ground. Areas depending on irrigation water and all crops that need considerable subsurface moisture had a tremendous initial handicap. Snowfall was light in the western mountains during the winter of 1933–34. Streams dried up that had never dried up before, and lakes fell to record low levels. Supplies of irrigation

water failed and even supplies of water for livestock to drink failed in many regions.

Fairly good June rains in the Dakotas and Montana came too late to save the crops. Spring wheat, other small grains, and hay were already ruined. The June rains did help the livestock situation and improve the range. Meantime in other areas the drought became worse. It struck the western part of the main Corn Belt a fearful blow just when the corn could stand it least. High temperatures, hot winds, and dryness hit the crop as it was beginning to tassel. Fairly good rains late in July and in August improved matters in the eastern part of the Corn Belt, in the Potomac River watershed, and in some dry areas east of the Mississippi. Nevertheless, corn prospects declined greatly. In an area including the major parts of Nebraska, Kansas, Missouri, and South Dakota, and parts of southern Iowa and west-central Illinois, corn for grain was practically a total failure. In Texas, Oklahoma, and Arkansas only the early planted corn produced grain.

The first half of August brought very helpful showers to most of the Ohio Valley area, and the last half of the month had much cooler weather, with substantial to heavy rains, in much of the Southwest, especially Oklahoma and Missouri. Moreover, during September wide-spread, generous rains effectively relieved droughty conditions, at least temporarily, over a large midwestern and southwestern area extending from southern Minnesota and Nebraska over the western Winter Wheat Belt. The rains were especially timely in conditioning the soil for seeding winter wheat over the most important sections of the belt.

Reduction of the Surpluses

Outstanding among the results of the drought was a great change in the farm-surplus situation. Normal wheat consumption in the United States to the end of the 1934–35 year, assuming neither imports nor exports, will reduce the wheat carry-over to about 156,000,000 bushels, as compared with an average of about 339,000,000 bushels in the preceding 5 years. The 10-year average previous to 1929 was 110,000,000 bushels. The cotton carry-over will be close to normal by the end of the 1934 season, though the drought was less responsible for reducing the supply of cotton than the acreage adjustment.

Production of corn, oats, barley, and grain sorghums was only about 63,000,000 tons as compared with an average of 101,000,000 tons for the period 1928–32. This reduction in the feed supply entailed corresponding adjustments in livestock numbers. The number of hogs fed for the marketing year beginning October 1, 1934, may be less than 70 percent of the number fed for the preceding marketing year. By next spring cattle numbers will be sharply reduced, in the most rapid liquidation ever known.

Prices of many of the crops severely affected by the drought rose during the summer. Grain and hay prices advanced sharply. Cotton prices advanced when drought damage to that crop became apparent. Cattle prices did not respond immediately, because heavy marketing from the drought areas occurred. Other classes of livestock, except hogs, either failed to advance or declined in prices

through forced marketing. Hog prices improved significantly. Livestock products showed a quicker tendency to rise in price than livestock. Butter and egg prices strengthened notably. Ultimate effects of the drought on prices will be greatly different from the first effects. The prices of cattle, sheep, and poultry will undoubtedly advance after the forced marketing is over. The slower response of livestock prices to the drought will probably cause these prices to remain relatively high longer than other farm-commodity prices.

Drought Relief Action

The Government relieved farmers who had been made destitute. It bought starving cattle, shipped food, feed, and seed into the drought-stricken areas, assisted farmers in maintaining their foundation herds, and in digging or deepening wells, and provided employment. In various activities the Agricultural Adjustment Administration, the Federal Emergency Relief Administration, the Federal Farm Credit Administration, and other Federal agencies cooperated. Benefit payments for crop adjustments and funds available for the control of livestock diseases were important sources of relief. An important emergency step modified the planting restrictions on farms under A. A. A. contracts so as to encourage the production of forage.

The cattle buying resulted up to the middle of October in the purchase of about 7 million cattle in 20 States. For these cattle the Government paid $92,000,000. Formerly in times of severe drought the markets quickly became glutted with thin cattle. Farmers had to sacrifice many of their best animals. This year they did not have to force their stock upon the commercial markets at a heavy loss. The Government paid a fair price. Farmers were able to dispose of their older and less profitable stock, as well as calves and young cattle, for which they had insufficient feed. Had there been no drought, a reduction of some 4 million in cattle numbers would have been desirable. Nineteen hundred and thirty-four was the peak of the cycle in cattle numbers, and the heavy supply depressed the price. A large proportion of the cattle that had to be removed owing to the drought was no loss to the cattle industry. But as the drought grew worse it became necessary to go beyond this point and to speed up cattle purchases to the limit set by processing facilities.

However, the purchase of cattle meant that as many more were saved from starvation. Feed which the purchased cattle would otherwise have eaten became available to tide 7 million other cattle over the winter.

Funds for the cattle buying came partly from an appropriation for a cattle-adjustment program under the Jones-Connally Act and partly from a special congressional appropriation of $525,000,000. The Agricultural Adjustment Administration established a field headquarters at St. Paul, Minn., and obtained the cooperation of extension directors, agricultural college leaders, and county agricultural agents. Accredited veterinarians, or local committees appointed for the purpose, appraised and purchased animals. Field agents of the Federal Surplus Relief Corporation took delivery of the animals and shipped them to be slaughtered.

For the cattle purchased the Government paid an average price for all ages of about $13.50. The prices included a benefit payment to cattle producers free of all liens. The schedule was uniform for all States. Including the benefit payments, it ranged from $12 to $20 for cattle 2 years old and over, from $5 to $15 for yearlings, and from $4 to $8 for calves under 1 year. These prices were established as nearly as possible on the basis of what cattle would bring on the slaughter market, without any deduction for shipping and marketing costs. Thus the cattle-buying program brought the market to the farm. Six dollars of the price paid for 2-year-olds, $5 of the yearling price, and $3 for the price of calves constituted benefit payments. These benefit payments roughly equaled the shipping and marketing costs that farmers would have had to pay had they shipped their cattle to market in the usual manner. Farmers and their creditors alike generally found the arrangement fair and acceptable.

Purchase of Sheep and Goats

Most of the cattle purchased, except animals condemned as unfit for food, were delivered to the Federal Surplus Relief Corporation for slaughter and canning in commercial packing plants for later distribution to needy families. Some cattle were shipped to States where pasturage was available. Later, the Government launched a program contemplating the purchase of several million head of sheep and goats. It arranged to pay $2 a head for ewes 1 year and over and $1.40 a head for female Angora goats of the same age. Flocks came off the high mountain ranges 3 to 6 weeks early as a result of the drought. They moved into feeding grounds often entirely bare of vegetation. Supplies of hay and other feeds were scarce and dear. It was necessary, in order to avoid severe winter losses, to reduce the flocks from 30 to 60 percent. A Federal livestock feed agency was set up in Kansas City, to aid in the distribution of feed and forage. County committees surveyed feed needs in the drought areas and arranged with local dealers to order supplies.

Various other activities under the Agricultural Adjustment Act aided farmers in dealing with the drought. Of course, the drought had not been anticipated when the 1934 A. A. A. plans were being formulated. As it worked out in the end, however, more feed was available in 1934, in proportion to the livestock, than would have been available if production-control programs had not been in operation. These programs brought about an orderly adjustment in hog, cattle, and sheep numbers, and a net increase in forage-, pasture-, and hay-crop plantings. As a result, agriculture came through the season with about 6 percent more grain per grain-consuming animal, and with about 17 percent more hay per hay-and-pasture-consuming animal than would otherwise have been available.

Without the programs, the production of feed grains would have been somewhat larger. But livestock numbers especially of hogs, would have been much larger. Without the adjustment programs, the volume of grain available per grain-consuming animal unit would have been about 1,040 pounds, as compared with 1,100 pounds that will actually be available or an increase of about 6 percent due to the A. A. A. programs. Encouragement given by the programs to hay production will make the current hay supply about 13 percent greater

than it otherwise would have been. In the case of hogs particularly, the adjustment programs show a substantial benefit. Hog production would have been much larger had the programs not been put into effect, and the enforced liquidation of surplus stock at very low prices would have involved severe loss. The hog programs averted disordered and expensive last-minute adjustments. Then after the drought appeared, if it had not been for the cattle- and sheep-buying programs, cattle and sheep prices probably would have fallen below the point at which they could offset marketing costs.

AN EVER-NORMAL GRANARY

One effect of the drought is to emphasize the importance of maintaining adequate farm reserves, particularly in regions subject to extreme hazards. In the pioneer epoch, farmers stored feed and hay against lean years as a matter of course. With the development of communications and of transportation, and with the resulting evolution of a more specialized and more commercialized agriculture, the practice declined. Farmers came to doubt that it paid. In the dry-land regions the newer system had obvious risks. These risks could be carried during the years of moderately heavy rainfall, the more easily because fairly good prices prevailed. The chance to lay by a money reserve weakened the motive to establish a commodity reserve. But the situation now is different. Against the combination of weather hazards and low prices, farmers need the protection of an adequate reserve with safeguards against any possible depressing influence on prices. Here, in conjunction with the crop-adjustment program, is an obvious responsibility of the Agricultural Adjustment Administration. Means should be developed to conjoin the adjustment of plantings with protection equally against crop failure and against the tendency of large stocks to depress prices.

Significance of Curtailed Foreign Outlet

Since 1933 the demand from abroad for American farm products has undergone no material change. Our exports of grains and livestock products have almost disappeared. We continue to export cotton and tobacco and fruits in large quantities, but the foreign market for these commodities is not what it was. In the case of all food products except fruits, we have still to think in terms of a sharply curtailed foreign outlet. As far as we can see for the moment, our emergency program and the first phases of our long-time program must be shaped toward reduced production for export. This may be less permanently true of cotton than of grains and livestock products. For the present at any rate, however, the cotton situation also calls for production adjustment.

But reduced production for export raises certain new questions. Adjustments nearer to domestic requirements need to be coupled with protection against crop failure. Farm reserves must be larger than the so-called normal "carry-overs" of predepression days. Formerly, when we produced heavily for export, carry-overs did not have to be large. It was simply necessary, in seasons of small production, to reduce the exports. In proportion as this automatic safeguard disappears, it becomes more important to maintain reserves

from season to season. Such reserves tend to stabilize both production and prices. Our emergency experiments have revealed more clearly the requirements of controlled production. One requirement is a method of absorbing the shock to markets which occurs when seasonal conditions violently disrupt the intended adjustment.

When production varies greatly, either through weather conditions or the action of farmers, prices fluctuate correspondingly, but not usually in a manner permitting farmers to break even. They lose more on the declines than they get back on the advances. This is largely because speculators intervene between the producers and the consumers. Speculation depresses prices excessively to farmers in seasons of surplus production, and keeps from them the full benefit of rising prices in seasons of low production. Too much of the consumers' dollar goes to nonproducers. Hence producers and consumers have a common interest in the control of both production and marketing.

We now have a fairly satisfactory mechanism for controlling acreage, and in the case of some crops for the control of marketing. We have had some experience with storage for the double purpose of insuring the farmer a satisfactory current price and of maintaining reserves.

The Cotton and Corn Loans

In 1933 the Federal Government established the Commodity Credit Corporation. Up to the present it has lent money only on cotton and corn, and a small amount on naval stores, but the loaning facilities could be expanded to cover other storable commodities. The corporation obtains its funds from the Reconstruction Finance Corporation, which has made commitments of $500,000,000 to it for use in connection with the loan programs.

During the 1933–34 season, the basis of the cotton loans was 10 cents per pound. Borrowers agreed to participate in the 1934 cotton-adjustment program. The Commodity Credit Corporation loaned direct to cotton borrowers approximately $60,000,000, and the banks and other lending agencies of the interior, who were authorized to participate in the loan program, loaned an additional amount of approximately $60,000,000. The Commodity Credit Corporation agreed to buy in such paper as was offered it by the interior banks and lending agencies prior to July 1, 1934. The purchase of this paper brought the total loans made by the corporation up to a total of approximately $102,000,000. It is estimated that more than 420,000 cotton farmers have been benefited under this program. Approximately 64 percent of the total amount loaned was liquidated by September 12. In 1934, the administration continued its cotton-loan program, with the loan basis increased to 12 cents per pound.

On corn during 1933–34 the Administration made loans to producers at 45 cents a bushel. About 270,000,000 bushels were sealed in farm cribs. The loan value was above the current market price of corn at the beginning of the season. Subsequently prospects of reduced corn production raised the market price, and farmers were therefore able to liquidate their loans at a substantial profit. Scheduled originally to end on August 1, 1934, the Government extended the corn-loan program to September 1. Up to September 15, 160,000,000 bushels had been released from storage.

As in the case of cotton, the Government will continue the corn-loan policy to cover the 1934 crop. It has increased the loan value to 55 cents a bushel. This price, while below the market price in September, and below the price that is expected to prevail for the marketing season, gives farmers a means of keeping a supply of corn within their control. In a year of short supplies this is obviously an important consideration. On both cotton and corn the loaning policy has proved to be economically sound and helpful to farmers. It has furnished experience that will be valuable in creating the ever-normal granary.

The corn loans, particularly, demonstrated the advantage of farm storage coupled with production adjustments. They removed from the market in 1933 the depressing effect of stocks present above current needs, and established a reserve, which the 1934 drought made invaluable. Under ordinary conditions the excess supply would have moved into commercial channels, beyond the control of the farmers. After the crop failure of 1934 they would have had to buy back the reserve at greatly enhanced prices. But instead of having parted with the surplus, they had simply borrowed against it. It remained available to them at no increase in cost, except the interest on the loans, for maintaining their livestock under drought conditions. Farmers were in a much better position to preserve their breeding stock than they would have been had their cribs been depleted in the usual way.

Necessary Size of Reserves

Drought years do not usually come in succession and crop adjustments must rest on the expectation of normal growing conditions. Nevertheless, the two seasons of drought through which we have passed raise urgently the question, "What should be an adequate reserve?" We used to consider 120,000,000 bushels a sufficient carry-over of wheat. Perhaps we ought now to plan for a normal carry-over of 200,000,000 bushels, and for much increased carry-overs of some other crops. Means must be developed, however, to prevent the additional stocks from depressing prices. Storage must be linked with production control.

Ordinarily heavy carry-overs reduce the price to producers. Agriculture had painful experience of this fact as a result of the stabilization operations of the Federal Farm Board. Storage by itself, even by the Government, is ineffective. Withholding supplies does not support prices for long if production increases unduly. This country's efforts under the Farm Board to stabilize wheat and cotton prices simply by storing surpluses demonstrated that not even a powerful Government, with ample funds, can bolster prices against overproduction.

With borrowers obligated to cooperate in crop adjustments, the Commodity Credit Corporation could make loans on various storable crops, just as it has done on cotton and corn. Lending at a higher percentage of the current value than is usual in private or Government loans would insure wide-spread participation by farmers. In years of large production, surpluses would be stored on terms fair to the farmers, and yet not involving risk to the Government. The contracts with borrowers for the control of production the following

season should prevent the price of the goods from falling below the loan figure. Hence the loans would be reasonably safe.

This system would have many advantages. It would protect consumers against possible shortages and tend to stabilize production and therefore prices. There is, of course, always a chance of surplus crops 2 or more years running. But even in that case the ever-normal granary would absorb the market shock. It would simply be necessary, following two or more heavy crops, to reduce the acreage sharply. Moreover, the ever-normal granary would furnish a means of regulating the production of livestock. Growers could draw on the stored feed to stabilize livestock numbers. We may have here the beginning of means to control the livestock-production cycles.

Coordinating storage with crop adjustment would have another advantage. Stored commodities could be used in lieu of cash benefit payments. Part of the stored surpluses would probably become the Government's property. This part could be released to farmers as compensation for crop adjustments. Farmers would thus have the possibility of a speculative profit, the amount of which would depend largely on their success in controlling production. Giving the farmer a certain quantity of wheat, instead of a certain amount of cash as benefit payment for crop control, would bring home vividly to the producer's mind the relation between supply and price. It would create another motive for the crop adjustment.

Plan Would Not Harm Business

As a part of the program the Government would need to guarantee private traders against the apprehension of sudden disruptive releases of stored goods. Commodities would be released only with due regard to prevailing market conditions. Full information as to the storage program would be made public. In the 18 months during which the Agricultural Adjustment Administration has functioned it has played square with business. It will continue to play square. It will not spring any surprises on the market. It will coordinate the storage and adjustment operations so as to promote the ultimate objective of the Agricultural Adjustment Act—the restoration of farm commodity prices to the pre-war parity. Flexibility is essential in adjustment to a changing situation. But keeping a program flexible need not mean letting it become sudden, spasmodic, or harmful to business.

FARM RESULTS OF RECOVERY POLICIES

Following the passage of the Agricultural Adjustment Act, the position of agriculture improved greatly. Farm-commodity prices in September 1934 averaged 102 percent of the pre-war level as compared with a low point of 55 percent reached in March 1933. Gains in farm-commodity prices were partly offset by increases in the prices of commodities bought by farmers. From 1932 to 1933 the index of prices paid by farmers advanced 2 percent. From March 1933 to September 1934 it advanced 26 percent. However, the exchange value of farm products in September 1934 was 81 percent of the pre-war level as compared with only 55 in March 1933.

In 1932 the average farmer, after paying interest, taxes, and the expenses of production, had nothing left as a return for his capital and management. In 1933, for the first time since 1929, he had left a small net balance after writing down his capital structure. Income from marketings in 1933, with benefit and rental payments added, exceeded that of 1932 by 16 percent, and prospects are for an additional gain of 19 percent in 1934.

The total cash income of farmers from the sale of farm products for the calendar year 1934, including rental and benefit payments and income from the sale of cattle, sheep, and goats to the Agricultural Adjustment Administration, is estimated at approximately $6,000,000,000. This estimate is based upon an analysis of farm production in 1934, probable prices and marketings of farm products during the last 5 months of the year, and cash income during the first 7 months of the year as previously estimated. The estimated cash income for 1934 is 19 percent larger than in 1933 and 39 percent over 1932.

Estimates of cash income from farm marketings on a calendar year basis from 1924 to 1934, including rental and benefit payments in 1933 and 1934, are as follows:

1924	$9,785,000,000	1930	$8,451,000,000
1925	10,324,000,000	1931	5,899,000,000
1926	9,993,000,000	1932	4,328,000,000
1927	10,016,000,000	1933	5,051,000,000
1928	10,289,000,000	1934	6,000,000,000
1929	10,479,000,000		

Farm Realty Values

In the year ended March 1, 1934, the average value of farm real estate for the United States as a whole showed an increase. It was the first year since 1920 to record a gain. This was good evidence of farm improvement; for farm-land values depend ultimately on farm earnings.

From the low point of 73 percent of the pre-war level, to which farm-real-estate values declined in the preceding year, the average value for the country rose in the year ended March 1, 1934, to 76 percent of the pre-war level. The improvement was not distributed equally in all regions. Roughly, the regional changes reflected differences in farm earnings. The greatest relative increases occurred in the South Atlantic and South Central States. Improvement in farm commodity prices and in farm incomes was a leading cause of the upturn in farm-real-estate values. The fact that the gross income from crops increased much more than the gross income from livestock and livestock products was an important reason for the uneven distribution of the gains in farm land values.

This all around improvement is the result of many factors, the separate influence of which cannot be measured. Undoubtedly, however, the recovery program launched by the National Government, with its threefold effort to adjust the general price level through monetary action, to bring farm production more nearly into balance with the demand, and to refinance and otherwise to relieve farm debt is by far the most important.

Effect of Monetary Policies

Revaluing the dollar benefited agriculture because prices of the raw-material farm products responded promptly, while prices of many of the things that farmers buy increased more slowly. The Government suspended gold payments on foreign account on April 19, 1933. Other steps followed under title III of the Agricultural Adjustment Act, which gave the administration emergency monetary powers. Between April 15 and July 15, 1933, the farm price of cotton advanced 75 percent and the farm price of wheat 92 percent, but this rise was partly speculative and some reaction followed. A revival of textile manufacturing, and the expected crop adjustment, helped the price of cotton. In the case of wheat, the prospect of a short crop was a factor. In both cases, however, the new monetary policy was obviously an important influence, as may be inferred from the advances that took place simultaneously in nonagricultural raw materials. The effect of the devaluation on prices of farm products did not cease with the subsequent stabilization of the dollar at a new value. Farm commodities that had not responded immediately to devaluation responded slowly. As a result of devaluation, agriculture has gained in power to buy nonfarm goods and also in power to meet debts and taxes.

Results of Crop Controls

The first year's cotton program simply prevented an increase in the surplus. Farmers, however, saved the extra expense of carrying the full-planted acreage to harvest. They received an average farm price of 9.7 cents per pound for their crop, and rental and benefit payments besides. From the lint the growers received about $633,000,000 as compared with $424,000,000 realized in 1932. In addition they received $163,000,000 in rental and benefit payments. Consequently the income of cotton farmers from lint in 1933 was about 88 percent more than in 1932. About half the increase may be properly attributed to the activities of the Agricultural Adjustment Administration. By the end of the 1934 season the world carry-over of American cotton will be close to normal, and higher prices for American cotton should prevail.

Activities of the Agricultural Adjustment Administration helped to increase the income of wheat growers. The cash income from wheat marketings in the 1933–34 season (exclusive of benefit payments) was about $267,000,000 as compared with $195,000,000 in 1932. Growers obtained this amount from the sale of only 368,000,000 bushels, whereas marketings the previous season totaled 524,000,000 bushels. Price gains more than sufficed to offset the reduction in the 1933 marketings. Benefit payments added $98,600,000, so that the total cash income from wheat for the 1933 season amounted to $366,000,000, an increase of $171,000,000 over that of the previous year.

In the 1934–35 season farmers will market some old wheat carried over from the previous seasons, and also the new crop, at prices which may give them an income a little larger than they received for wheat during 1933–34. There will also be benefit payments.

In the case of corn and hogs the full benefit to farmers from the activities of the Agricultural Adjustment Administration has not yet been realized. Prior to the midsummer of 1934 prices of hogs and the income therefrom did not improve significantly. Nevertheless, distinct advantages from the adjustment programs may be recognized. By purchasing pigs and sows in the fall of 1933, and subsequently by making large purchases to provide meat for relief, the Government stabilized the market through the winter season. By placing a large quantity of corn under seal for loans, it helped to conserve the supply of corn, and at the same time to slow up livestock production. Hence the corn-hog program will realize its greatest benefits within the next 12 months. Already prices are reflecting the prospect of better adjusted supplies, and in addition to higher prices farmers will receive large benefit payments. Considering 1933 and 1934 together, hog producers should receive, with the benefit payments, some net gain in income. Still more important, the supply situation will be adjusted to a more profitable basis.

The tobacco program increased the growers' receipts from the 1933 crop by about $50,000,000. In addition, growers received $28,000,000 in rental and benefit payments. The total income of farmers from tobacco during the marketing year 1933–34 was approximately double that of 1932–33 and nearly equal to the average for the last 10 years. Tobacco farmers received an increased proportion of the consumer's tobacco dollar.

More than 90 percent of the tobacco growers of the United States and Puerto Rico are operating under production-adjustment contracts. The 1934 crop was approximately 25 percent smaller than that of 1933 and was as much below the average annual world consumption of American tobacco as last year's crop was above that level. For the first time in several years the returns appear to be remunerative to tobacco growers.

Farm Debt Relief

Great benefit to agriculture has also resulted from action taken under the Emergency Farm Mortgage Act of May 12, 1933, and the Farm Credit Act of June 16, 1933.

Formed by Executive order of March 27, 1933, the Farm Credit Administration merged a number of existing Federal credit agencies and created a central administration. This organization administers the provisions of the Emergency Farm Mortgage Act, and also of the Farm Credit Act, which provides new facilities for production and marketing credit and for cooperative credit. The Farm Credit Act, supplementing the Federal Farm Loan Act of 1916 and subsequent legislation, provides a complete credit service for agriculture which is designed for permanency.

In the prolonged depression, farm credit had virtually collapsed. Many credit institutions were bankrupt, and more than 40 percent of the banks in the country closed their doors between July 1928 and July 1933. The restriction of credit was more pronounced in agricultural areas than elsewhere. Consequently the Farm Credit Administration reorganized the facilities of the Federal land bank system and began refinancing farm-mortgage debts.

Recognizing that depression values did not represent the true worth of farms, the Farm Credit Administration inaugurated the policy of appraising farms on the basis of normal values, and through its refinancing operations provided quick relief to farmers and overburdened lending institutions. Frozen credits were melted and business confidence in agricultural areas revived.

Farm-mortgage debts in the United States in 1932 constituted about $8,500,000,000, out of a total farm-debt burden of probably $12,000,000,000. Private institutions and individuals held a large part of the farm-mortgage debt, while commercial banks carried both farm-mortgage and short-term loans in large amounts. The total farm debt in 1932 amounted to nearly three times the total gross farm income of that year and was about equal to the gross farm income of 1929. Under the prevailing credit conditions, the farm debt threatened to ruin both debtors and creditors. The newly created credit facilities relieved both groups.

In the first 15 months under the Farm Credit Administration the Federal land banks made over 450,000 loans to farmers for more than $1,150,000,000. About 90 percent of these loans refinanced existing indebtedness. By the summer of 1934 the Federal land banks and the land-bank commissioner were holding over $2,100,000,000 in farm mortgages.

Claims Scaled Down

Creditors who were desirous of converting farm paper into cash have, in many instances, scaled down the amount of their claims in order to make it possible for heavily indebted farmers to refinance their loans through the Farm Credit Administration. Such scale-downs were necessary where the farmer's total debts exceeded 75 percent of the normal value of his property, since a land-bank commissioner's loan, together with prior liens, may not, under the law, exceed 75 percent of the normal value of the farm property offered as security for the loan. From June 1, 1933, through August 22, 1934, borrowers through the Farm Credit Administration obtained reductions in their indebtedness amounting to more than $56,000,000. About 16 percent of the borrowers obtained scale-downs of their indebtedness in connection with the refinancing operation. Where such reductions occurred the amount scaled down constituted 26.3 percent of the prior indebtedness.

Furthermore, these borrowers benefited from interest reductions, because the rates charged by the Federal land banks and the land-bank commissioners are usually lower than those previously paid by the borrowers. In interest alone the saving to farmers on farm-mortgage indebtedness refinanced through the Farm Credit Administration is estimated at over $16,500,000 a year, or nearly one-fourth of the interest formerly paid on the same indebtedness.

Under the Emergency Farm Mortgage Act all borrowers from the Federal land banks obtained a reduction in their interest charges. On Federal land-bank loans in force in May 1933 the interest rate ranged from 5 to 6½ percent, and averaged 5.4. During the 5-year period ending July 12, 1938, the rate of interest on loans made through national farm-loan associations prior to May 12, 1935, is reduced to 4½ percent. The interest rate on loans obtained directly

from the Federal land banks is temporarily reduced to 5 percent. In addition, the legislation authorized postponement of principal payments during the 5-year period ending July 12, 1938, and also provided that extensions of unpaid installments on loans might be granted to worthy borrowers during this period.

Local Credit Associations

During its first year the Farm Credit Administration also helped farmers build a system of 650 local production credit associations. These associations of farmer borrowers are now in operation and provide a permanent Nation-wide system of low-cost production and marketing credit. The associations make loans on crop and chattel security, and through them production money becomes available to farmers and stockmen at rates of interest which, for the country as a whole, are the lowest ever charged for this type of credit. The associations are now making loans to farmers and stockmen at 5 percent interest. Many private lending agencies charge 2 to 3 percent more.

Thus Federal action under the new administration has furnished three principal types of agricultural relief. (1) By devaluing the dollar it has caused the prices of certain farm commodities to rise more than the prices of the things that farmers buy, and increased their ability to meet debts and taxes. (2) Through production adjustments financed by processing taxes and through marketing agreements with production-control features, it has brought the supply of farm commodities more nearly into a profitable relationship with the demand. (3) Through credit relief it has lightened and refinanced farm debt. It would not be correct to ascribe the whole improvement in farm conditions during the last 2 years to Federal activities. Much must be credited to the country's natural recuperative power. Depressions tend to run their course and to generate corrective forces spontaneously. However, this is a slow and painful process. In important respects, moreover, the present depression differs essentially from preceding depressions. It is world-wide and marked by an unprecedented break-down in international trade in which there has been as yet no significant revival. American agriculture was developed largely for trade with the outside world. The farm recovery of the last 2 years owes little or nothing to recovery in the world market. It is the result mainly of domestic changes, in which the activities of the Federal Government have been the most important element.

MARKETING AGREEMENTS

Another approach to the problem of increasing the income of farmers is through the marketing agreements and licenses authorized by the Agricultural Adjustment Act. Experience with such agreements and licenses during the past year indicates that under proper circumstances they may benefit producers substantially

Marketing agreements have proved to be particularly useful in the control of surpluses and in the regulation of shipments. Surpluses can seldom be effectively controlled by marketing agreements and licenses without the participation of 100 percent of the industry. A number of attempts have been made to deal with a surplus problem through the cooperative organization of growers and handlers,

but it was seldom possible to obtain the support of the entire industry. In most instances from 15 to 20 percent of the producers refused to cooperate and were thus able to obtain substantial benefits under the program without sharing the costs.

In the season of 1933, for example, California's supply of Valencia oranges was so large that all of the larger marketing agencies and a number of individual shippers entered into a voluntary proration agreement. These agencies ship more than 90 percent of the Valencia crop. Despite the large percentage of the industry which was cooperating, it was found that the small minority outside the agreement shipped quantities considerably in excess of their proper proportion. In other words, this small minority profited by the sacrifices of the large majority. The experience under this voluntary agreement led the industry to develop a marketing agreement under the A. A. A. This agreement has been in operation since December 1933. Plans for national proration under a national citrus agreement are now going forward.

Officially approved marketing agreements have placed many programs on such a basis that all the groups concerned, cooperative and proprietary alike, must participate. Embodied in the terms of a blanket license, the essential features of the marketing agreement bind all the handlers or processors engaged in the industry. By this means the former noncooperators are kept from reaping more than their share of the benefits. Marketing agreements and licenses have thus made it possible for the growers of citrus fruits, walnuts, raisins, and other commodities to avoid the disastrous effects of unregulated supplies.

Supply Control Features

Marketing agreements usually involve more than the simple term "agreement" may imply. Producers, processors, and handlers of farm products sometimes believe that simple agreements as to prices will increase the income of producers. Simple price agreements may work occasionally, but usually only for one producing season. Generally, marketing agreements require provisions for affecting supplies, either by regulating the movement to market or by eliminating part of the supply from commercial channels. In a measure the supply-control features of the marketing agreements correspond to the production-control features of the adjustment programs developed for the major crops. However, the agreements usually provide only for the control of supplies already produced and not for the control of new production.

Marketing agreements have dealt effectively with perishable commodities produced at great distances from consumer centers. In such cases transportation and handling costs absorb much of the terminal market price. In years of excessive supplies the wholesale price at consuming centers tends to fall below the handling and shipping costs. It is then possible for the producers and handlers, acting in cooperation, to control the movement of these products so as to avoid the demoralization of the markets. They can retain excessive supplies in the area of production and save handling and transportation costs, which would largely represent loss.

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Many different methods of regulating market supplies have been developed in connection with marketing agreements. Agreements relating to fresh fruits and vegetables usually provide for a simple proration of shipments, sometimes coupled with a stricter control over the marketing of low-grade products. Methods must suit the particular industry. Frequently a careful regulation of shipments, so as to avoid alternate gluts and shortages, improves the net income of producers, without reducing total supplies to consumers. Farmers dislike to destroy or to refrain from marketing products which they have grown. Hence there is little danger that proration will restrict marketings excessively.

Supply-control features of some agreements divert a portion of the supply from the regular trade channels into byproducts. Such arrangements are now in effect for the walnut and raisin industries. The purchase of excess supplies for relief purposes, and their removal from commercial channels, have like effects.

Some agreements and licenses control prices paid to producers. To be effective in most cases such action must be coupled with some control over supplies marketed or over marketing and distributing practices. Wherever possible, the administration has avoided direct price fixing in connection with marketing agreements and licenses. Many of the early agreements, including those relating to peaches, olives, and milk, provided for fixed prices to producers and fixed resale prices. This involved the fixing of processing or distribution margins. Price fixing of this character necessitates either a satisfactory compromise as to the size of the margin or regulation of the spread in price between producer and consumer. Such regulation would require administrative machinery and procedure similar to that which the Interstate Commerce Commission has been developing for a generation. As a matter of fact, it is doubtful whether processing and distributing margins can be dealt with satisfactorily through marketing agreements. In most cases the A. A. A. will sponsor the direct control only of prices paid to producers, and not then unless price control goes along with some measure of supply control or regulation of market prices.

The Milk Licenses

In the case of milk licenses, which provide for minimum prices to producers, the classification of milk according to its use, the equalization of sales opportunities and of surplus burdens among producers, and other protective measures are all interwoven with prices, and with the problem of increasing the income of milk producers. In most cases the minimum-price provisions of the licenses have been of direct value to producers by affording reasonable price stability and by protecting producers against the past practice whereby farmers bore the brunt of dealers' price wars. Under the licenses, prices may be so determined as to make for a reasonably compact milk shed without having any of the objectionable features of fixed territorial boundaries or certificates of necessity. For example, by requiring through a license that all distributors pay the same price for milk used for similar purposes, it is possible to remove the chief incentive which the distributor has to go out and develop new sources of supply when such supplies are not needed in the market. Fur-

thermore, by requiring that all distributors participate in a pooling plan for a particular market it becomes impossible for a group of producers either to undersell the market or to obtain higher average prices than are received by other producers similarly situated.

Experience in connection with milk licenses also indicates that the provisions of these licenses affecting practices in the distribution of milk have been quite important as a means of improving the income of producers. For example, each license provides for check-testing and check-weighing services, which are designed to protect producers against unscrupulous practices. In some cases the reduction or elimination of transportation or other handling charges have been directly reflected in higher net prices to producers without any change in wholesale prices. It has also been possible to give producers more protection against credit losses through nonpayment by financially irresponsible dealers.

One Danger in Marketing Agreements

Some of the marketing agreements operate to raise prices by reducing the supply available for consumption. In these agreements there is frequently the danger, therefore, that those involved will make the same mistake that some urban industries have made—that they will curtail supplies excessively for the purpose of maintaining prices at too high a level. The nature of the farming business and the psychology of the farmers themselves are a partial safeguard against too great a restriction in volume. Furthermore, in the agreements which it has approved the Agricultural Adjustment Administration has taken great pains to avoid this unfortunate outcome. Nevertheless, it is to be expected that from time to time pressure will come from some agricultural groups operating under marketing agreements similar to that which is frequently exercised by certain groups interested in factory production.

PROTECTION OF CONSUMERS

It is expressly stipulated in the Agricultural Adjustment Act that the interests of consumers shall be protected. Farm production shall be adjusted, the act declares, "at such a level as will not increase the percentage of the consumers' retail expenditures for agricultural commodities, or products derived therefrom, which is returned to the farmer, above the percentage which was returned to the farmer in the pre-war period August 1909 to July 1914." In other words, for the protection of consumers, the measure sets a limit to the level to which farm commodity prices may be raised by crop adjustments or marketing agreements.

While, as consumers, people naturally desire that prices of things they buy shall be low, it is important to recognize that the permanent public welfare, including the welfare of consumers, suffers when prices are forced down to levels not consistent with efficiency in production and distribution. During the depression, farm commodities were available to consumers at very low prices. This resulted mainly from a fall of farmers' returns far below the profit line. It did not mean a permanent lowering of consumer costs, and there was involved in it no reduction in the margins of processors,

distributors, or handlers. The reduction in consumer prices came almost entirely out of the farmers' returns. It was clear that, unless farm prices were brought back into balance with prices of goods bought by farmers, many farmers ultimately would be driven out of production, at which time consumers would have to pay unduly because of the resulting shortage of food. Consumers were suffering in another and more immediate way. The impairment of farm buying power caused unemployment in the cities and helped to bring about a general disorganization of the economic system. Thus the producer and consumer have both been victims of wide swings from surplus to scarcity, and of the extreme cycles of low and high prices.

The efforts of the Agricultural Adjustment Administration to raise the income of farmers in many cases involve higher prices to consumers. But so long as these increases are not diverted into nonfarm channels and so long as the share of the consumers' dollar received by farmers is not greater than that received by them in the pre-war period, this does not conflict in any way with legitimate protection of the consumers' interests. On the other hand, the increased income received by farmers actually helps consumers because it means increased buying of city-made goods by farmers, increased employment, and increased business activity all around.

Consumers, in other words, derive their fair share of the general advantage that results from a healthy economic condition in agriculture which is based upon fair prices to farmers. Reasonable remuneration of agriculture for providing the Nation with its food and fibers is not a burden upon consumers so much as it is an assurance to them that efficient production at fair cost will continue.

Interdependence of Farmer and Consumer

But just as there can be no more than a false or transitory advantage to consumers in ruinously low farm prices, there also is no enduring gain for agriculture in discriminations against the consumers. Farmers generally show a growing understanding that agriculture relies, for sustained progress, upon rising consumer buying power. This interdependence of farmer and consumer is a vital factor to be considered in planning all steps for economic recovery.

The Consumers' Counsel of the Agricultural Adjustment Administration has undertaken to provide protection for consumers under the provisions written into the Adjustment Act. Its work is a specific recognition of the mutual interests of farmers and consumers. Scrutiny of pending adjustment programs, marketing agreements, and codes from the point of view of consumer welfare, and examination of their economic effects on consumers, after they are in operation, are special functions of the Consumers' Counsel. The Consumers' Counsel represents the consumer interest in public hearings on agreements and codes, and advises the administration in the drafting of their provisions as they affect the consumer. It is important that provisions in marketing agreements and codes shall not be employed either openly or covertly to convey governmental sanction of excessive margins of processors and distributors, to widen spreads which already may be unjustifiable on economic grounds, or to disregard in any way the consumer or public interest in trade arrangements between organized producers and processors.

The Consumers' Counsel has proved increasingly useful in its functions. It has protected consumers by giving publicity in instances where efforts were made to pyramid processing taxes and so to make these taxes an excuse for profiteering under cover of adjustment programs undertaken by the Administration in the interests of farmers. As a matter of routine, the Consumers' Counsel tabulates and makes public information on the current consumers' prices of farm goods, and the relationship between those prices and the farm prices for the same commodities. In general, though the Consumers' Counsel is new and experimental, it may be said in all its work to emphasize usefully a very important principle—that recovery is not simply an affair of monetary gains, but that such gains must be translated into real income for the community as a whole.

PROCESSING TAXES

Few, if any, taxes have been popular. But most of us realize that if we abolished taxes we should at the same time abolish police protection, public schools, public roads, and many other necessary things. If we abolish the processing taxes, with nothing to take their place, we shall have to abandon our efforts to balance farm production with the market demand under the Agricultural Adjustment Act.

What actually happened to farm prices, to city retail prices and to processors' and dealers' margins after the processing taxes went into effect? Preliminary studies made in the Department of Agriculture were reported in Agricultural Adjustment: A Report of Administration of the Agricultural Adjustment Act, May 1933 to February 1934. Preliminary studies made by other research organizations have appeared in technical publications such as the Journal of Farm Economics. Such studies, though as yet incomplete, agree in their general conclusions.

They indicate—

(1) That the margins of processors and dealers (the spread between the prices they pay to the farmer and the prices they charge to the consumer) have been generally widened just about enough to cover the payment of the processing taxes and other increased costs, such as higher wage levels. There is little evidence of pyramiding except in a few industries and over short periods. Thus, the only possible loss sustained by processors and middlemen on account of the crop-adjustment programs is from a reduction in the amount of their business.

(2) That, considering the combined effects of reduced production, the collection of the processing taxes, and the payment of benefits to farmers, the net result has been to increase prices paid by consumers and to increase the incomes (including market prices and benefit payments) received by farmers cooperating in the adjustment programs.

Effects Upon the Consumer

City retail prices of food from the low point in March 1933 to June 1934 rose 20 percent. Not all of this rise resulted from the processing tax-production adjustment program. Part of it was due to short crops of wheat and potatoes, part to the devaluation of the dollar and the resulting rise in the prices of export commodities, and

part to an improvement in consumer buying power. During this same period pay rolls in manufacturing industries went up much more than did food prices. Similar comparisons based on other months give the same general conclusions—that incomes of wage earners in the cities have increased more than have the prices of foods.

The wheat tax of 30 cents a bushel represents about three-fourths of a cent a pound of flour which sells in city stores for about 5 cents, or about one-half cent on a pound loaf of bread costing the consumer an average of 8.9 cents on August 14, 1934. The cotton tax of 4.2 cents a pound represents about 8 cents on a pair of overalls costing $1.60; less than 8 cents on a sheet costing $1.30; about 3½ cents on work shirts costing 90 cents; or about 1.1 cents on a yard of unbleached muslin selling for 14 cents. The hog tax of $2.25 represents about 4½ cents on a pound of retail pork cuts. The Bureau of Labor Statistics reported that on August 14, 1934, sliced ham cost consumers an average of 39.6 cents; picnics, 15.6 cents; loin roast, 20.6 cents; sliced bacon, 29.8 cents; and lard, 11.3 cents. It will be seen that in all cases the processing tax accounts for only a small part of the prices paid by consumers for farm products.

Two provisions in the Agricultural Adjustment Act protect the consumer against excessive increases in food prices. The use of processing taxes, production adjustments, and benefit payments is limited (1) to restoring the purchasing power of farm products to the pre-war relationship, and (2) to restoring to the farmer the pre-war percentage of the consumers' dollar. These provisions are a definite safeguard against any unfair or exorbitant increases in the prices of food or other agricultural goods as a result either of processing taxes or of production adjustments. Moreover, the city worker will benefit indirectly but surely from an improvement in the farmers' buying power.

High Cost of Doing Nothing

Farm readjustments could be made without benefit payments, and therefore without the use of processing taxes, if we were willing to pay the price. From past experience, however, we may be sure that, unless the farmers were helped or forced to make such adjustments, they would be made too slowly. Meantime, hundreds of thousands of farm families would be pauperized, and the depression in both town and country would be indefinitely prolonged. One possible method of bringing back a desirable balance between production and consumption would be a policy of not interfering with the working out of economic laws. If the prices of wheat, cotton, hogs, and other agricultural commodities fell low enough and stayed low long enough, many farmers would be forced to give up their farms. This would reduce production. Thus a balance between production and consumption would gradually be brought about without any assistance from the Government. But thousands of farm families would be left destitute if the Government adopted the policy of not interfering.

Instead of leaving necessary adjustments to the individual farmer, the Government might compel him to make them, or might penalize a refusal to make them. It might license all farmers and regulate

their acreages and the number of their farm animals. This would be a direct attack on the problem, which might bring about necessary readjustments in a short time. It is doubtful, however, whether farmers would accept such compulsory regulation, except as a last resort. Compulsory regulation should not be attempted if readjustments can be accomplished through voluntary cooperation. In no case should it be attempted unless practically all farmers want it.

The farmer who is not willing to cooperate in production adjustments might be penalized by taxes or by other means. This would not amount to compulsory regulation. No farmer would be compelled to adjust his production. But the penalty for declining might be so severe that he would prefer to make the necessary adjustments.

The principal method followed up to the present is that of voluntary cooperation, with the payment of benefits to the cooperator. It is supplemented this year, in the cases of cotton and tobacco, by penalties on the noncooperator. Processing taxes are the only source of revenue from which the benefit payments are made. If processing taxes should be abolished, no substitute being provided, there could be no benefit payments. The whole adjustment program would be at an end. Critics of the processing taxes have not suggested any other means of financing the adjustment of production. Some alternative must be found before we can consider dropping the processing taxes.

Some Advantages of Processing Taxes

The processing taxes have advantages over other kinds of taxes.

They are easy and inexpensive to collect and difficult to evade. The revenue obtainable can be forecast with a high degree of accuracy. It is doubtful if any other form of tax would offer as sure and steady a source of revenue. Furthermore, the processing taxes apply only to the domestically consumed portion of the products taxed. They do not penalize the exporter. The farmer is not taxed on his production of foods processed for his own use. Also, the rates of the processing taxes can be easily and quickly adjusted to meet changing market conditions. Such flexibility would be difficult to achieve with other methods of getting revenue.

In the case of hogs, the processing tax tends to penalize the noncooperator. Unless supplies are reduced it falls, to some extent, at any rate, on the producer. The cooperating farmer receives compensation in benefit payments. The noncooperator, of course, does not. And in addition, he has to wait until the market supplies are reduced by the adjustments of cooperaing farmers before getting any relief in the shape of higher prices.

Some Disadvantages

There are also some disadvantages in the processing taxes.

Some economists maintain it is wrong to tax raw materials and contend that the tax should be imposed only on finished goods. They believe a tax on raw materials is pyramided, so that prices to the consumer are raised by much more than the amount of the tax. But, as was said earlier, there is very little evidence of any general pyramiding of the processing taxes.

The processing taxes may tend to lower the prices of some farm products below the levels which might exist if the adjustment program were financed by some other means. But this may induce more farmers to cooperate in production adjustments. Benefit payments and adjustments of production furnish adequate compensation.

Perhaps the most common objection to the processing taxes is that they increase retail prices. Studies indicate that practically all the wheat processing tax and most of the cotton processing tax pass to the consumer in the form of higher retail prices. Heavy Federal purchases of hogs were necessary when the hog processing tax first went into effect to sustain the market price of hogs so that the tax would not fall mostly on the producer. With reduced supplies resulting from the adjustment program, the tax is now being shifted to the consumer without the support of Federal buying in the market.

Wherever the adjustment program is successful, it will mean either higher retail prices or a decided reduction in the charges of dealers and processors. These intervening charges are very high, and means to reduce them should be sought. But the problem is difficult and complicated. So far no one has proposed a workable plan for a general reduction of the costs of transportation, processing, and marketing. Meantime the only way of increasing farm prices is through the increase of city retail prices. Fortunately a moderate increase in retail prices generally means a substantial increase in the prices received by farmers. Prices high enough to make farming pay are necessary. Such prices should not involve any injustice to the consumer.

The Most Serious Objections

The most serious objection to the processing tax, and one which merits careful consideration, is that the greatest burden falls on the poorer people. This is an important and legitimate criticism of the processing taxes. It should be remembered, however, that in proportion as the farm adjustment succeeds it will stimulate urban employment. This will furnish an important offset to any rise that may take place in the cost of living.

It might be possible to obtain the revenue necessary for benefit payments either by increasing the rates of existing Federal taxes or by providing for some new form of tax. Two possible sources of revenue would be: (1) an increase in the rates of income taxes and (2) a sales tax applied either to all commodities or to a group of commodities which might be classified as luxuries. If provision were made for financing benefit payments either from increased income taxes or from a general sales tax, the program would not be so great a burden on poorer people as is the processing tax.

Another source of revenue would be a tax on the profits of processors and distributors of farm products, or possibly a general tax on the profits of industrial concerns. It would be difficult for middlemen to avoid a substantial part of the burden of such a tax and it probably would have a tendency to reduce middlemen's charges and to bring about a narrower spread between the farm prices and the city prices of some commodities. Theoretically there is merit in such a tax. Practically, it would be difficult to work out satisfactorily. The income which might be obtained would be uncertain and would vary greatly from year to year.

Alternatives Should Be Considered

However, there should be careful consideration of possible alternatives to the processing taxes. There may be other possible methods in addition to those above outlined. The ideal requirement is a method which will provide adequate and sure revenue, which will be easy and inexpensive to administer, and which will not unduly burden consumers of low income.

FARM REAL ESTATE TAXES

Measurable relief from taxes came to agriculture in 1933, and 1934 promises additional relief. Farm real estate taxes reached a peak in the United States in 1929. In that year the average tax per acre for the country as a whole was 58 cents. This may be compared with an average of 24 cents in 1913. After 1929 the average farm realty tax per acre began to decline. In 1932 it stood at 46 cents, or 21 percent below 1929. Between 1932 and 1933 there was an additional reduction of about 6 cents an acre, judging from data already assembled from 23 States. Probably the average tax per acre for 1933 was about 39 cents, or 33 percent less than it was in 1929.

Naturally the tax reduction varied by States and regions. In California, for example, average farm real estate taxes per acre decreased from 94 cents in 1932 to 65 cents in 1933. On the other hand, in Mississippi the tax increased from 52 cents to 55 cents. Generally, the greatest reductions took place in the far Western and Middle Western States. Part of it resulted from a curtailment of social services and from salary cuts. In some States public borrowing permitted tax reductions. Farmers in many States obtained partial relief from the general-property tax through State laws providing revenue from other sources.

Nine States in 1933 allocated the proceeds of sales taxes to the support of public schools. Two States diverted to the schools the proceeds from increases in taxes on gasoline and lubricating oils. Three States provided that all or part of the revenue from newly levied income taxes should be devoted to the public schools. Federal funds to supplement teachers' salaries became available in 1934. Possibly farm taxes would have been reduced without this State and Federal assistance to the schools, but the rural school system would have suffered. Because the aid was forthcoming, the proportion of the total cost of government borne by the general-property tax was reduced.

Besides benefitting from a reduction in the amount of their taxes, farmers benefited from a decrease in the burdensomeness of the charges. They had more income with which to pay. Individual taxpayers find taxes bearable or not as their income varies. Hence the better measure of farm-tax burdens is not the amount levied per acre but the proportion that the taxes constitute of the gross farm income. Between 1932 and 1933 the gross farm income per acre increased more than 20 percent, while at the same time the real-estate tax per acre decreased between 10 and 15 percent. Hence the tax per $100 of gross income in 1933 was only about two-thirds what it was in 1932 and about the same as in 1930.

Farm Aid Through Taxation

Farm taxation, however, is only a part of the broader field of public finance. In the last year and a half farmers have seen this fact emphasized in ways to their advantage. They have had good reasons in the past to complain about the distribution of tax burdens. Excessive dependence on the general-property tax by State and local governments has frequently hurt them. Under new Federal legislation, notably the Agricultural Adjustment Act, taxation furnishes direct benefits to agriculture. Revenue for the rental and benefit payments which last year increased the gross farm income by one-fifth came from processing taxes. Benefit resulted to agriculture also from another change in public finance, namely, monetary devaluation, which raised prices and redistributed wealth to the farmers' advantage.

Federal expenditures, dependent as the last resort on taxation, benefited agriculture by relieving unemployment. Food and work furnished to the unemployed increased consumption and helped to raise farm prices. Federal funds for these purposes did not involve any increase in direct taxation of agriculture, since they did not come from taxes on general property. Federal, State, and local policies reduced farm-tax burdens during 1933 and 1934 in three distinct ways. They reduced tax charges absolutely, raised farm prices, and thereby enhanced the farmer's power to pay the remaining taxes, and tapped new sources of revenues for direct and indirect agricultural relief.

COTTON

When the Agricultural Adjustment Administration initiated the cotton-adjustment program in 1933 cotton was selling at about 6 cents a pound on the farm. The world supply of American cotton was about 26,000,000 bales, and had been near that record level for 2 years. Furthermore, cotton acreage had increased tremendously. Many farmers had no other cash crops to which they could turn, and low returns from cotton impelled them to increase their production in order to meet, as nearly as possible, their cash expenses incident to production and living. Labor drifting from the cities to the cotton States also strengthened the impulse to grow more cotton. As the season advanced, it became evident that the large acreage and good growing conditions would result in a big crop. Had cotton reached maturity on the entire acreage planted the output would have exceeded 17,000,000 bales. The world's supply of American cotton would have been more than 29,000,000 bales. The cotton-adjustment program for 1933, therefore, aimed to withdraw 10,000,000 acres from production, or the equivalent of 3,000,000 bales. A considerably greater adjustment was desirable and would have been attempted had circumstances permitted. Actually the program resulted in a withdrawal from cotton production of 10,500,000 acres, on which area average 1933 yields would have given 4,500,000 bales.

For withdrawing this land from production, 1,032,000 producers received from the Government approximately $112,600,000. They also received options on a quantity of Government-owned cotton, on which they made a profit of more than $50,000,000. The 1933 cotton crop was limited to 13,047,000 bales, and the world's supply

was reduced from 26,000,000 to 24,600,000 bales. This adjustment, with an improvement in the demand for cotton and with the reduction in the gold content of the dollar, raised the average farm price of cotton for the 1933–34 season to 9.7 cents per pound, as compared with an average of 6.5 cents per pound received for the 1932–33 crop. The farm value of the 1933–34 crop was $717,007,000, as against $483,912,000 in 1932–33. Including benefit payments and profits on options, the gross farm value of the 1933–34 crop was nearly $880,097,000.

After a series of meetings with farmers and others interested in the price and production of cotton, the Agricultural Adjustment Administration formulated a program for 1934 which called for an acreage reduction of approximately 40 percent of the average acreage planted to cotton during the period 1928–32. The campaign was launched in January 1934, and approximately 1,000,000 producers contracted to keep roughly 15,000,000 acres out of cotton production. The reductions constituted about 38 percent of the base acreage of the cooperating producers.

Payments to Producers

Payments to producers, as compensation for this reduction, were of two types. There was a rental payment amounting to 3½ cents per pound on the average per acre yield of the land taken out of production, and a parity payment, guaranteed to be not less than 1 cent a pound on the domestically consumed proportion of the base production. The domestic consumption of cotton during the base period, 1928–32, averaged 40 percent of the production. The contracts stipulated that managing share tenants should receive half of the rental payment, and that all tenants, including croppers, should share in the parity payments to the same extent that they shared in the crop. The total rental payments will be about $90,000,000 and the parity payments around $27,000,000, giving a total compensation from the Government to the farmers for the 1934 cotton acreage reduction of something like $117,000,000.

During the course of the 1934–35 sign-up campaign legislation was introduced in the Congress for the purpose of making compulsory the cooperation of all cotton producers in production-adjustment programs. This legislation seemed to meet with widespread support among cotton farmers, particularly contract signers. The Secretary of Agriculture, in order to ascertain the true sentiment of cotton producers, sent out more than 40,000 questionnaires in January 1934 to representative cotton producers requesting their opinion regarding legislation then pending in Congress designed to limit within an estimated market demand the quantity of cotton that could be ginned and sold in any one year.

The results of the questionnaire survey indicated that an overwhelming majority of cotton producers favored compulsory control of production. Congress passed the Cotton Act, commonly known as the Bankhead Act, on April 21, 1934. It represents a plan that met with the approval of the majority of cotton producers heard from in the questionnaire survey. The measure is effective for 1 crop year, from June 1, 1934, to May 31, 1935, and for a second crop year should the President find that a continuation of the emergency

requires it and that the Secretary of Agriculture finds that two-thirds of the cotton producers favor it.

Specifically, the Bankhead Act provides that 10,000,000 bales (500 pounds net weight) may be ginned free of the ginning tax in the crop year 1934–35. This amount of tax-exempt cotton is allotted to individual farms on the basis of the production history of each farm. The act also exempts cotton of 1½-inch staple length and cotton produced on publicly owned agricultural experiment stations. Other cotton above the 10,000,000-bale exemption is subject to a tax of 50 percent of the average central market price of ⅞-inch Middling spot cotton. In any case, the tax is to be not less than 5 cents per pound.

As a result of the voluntary adjustment and of action under the compulsory features of the Bankhead Act, approximately only 28,000,000 acres were planted to cotton in 1934. Low yields on this reduced acreage produced a crop estimated in October at 9,443,000 bales. The world supply of American cotton for the 1934–35 cotton marketing year will be below 20,000,000 bales, as contrasted with 26,000,000 bales when the adjustment programs started. The changed supply position caused a sharp advance in cotton prices. In August 1934 the farm price averaged 13.1 cents a pound.

A Long-Time Cotton Program

In a program designed to increase the returns of American cotton growers, not merely for a single season but for a long period, it is necessary to determine the point to which cotton prices may be raised without unduly stimulating foreign competition. Cotton production in this country has been developed to meet the demands of the world market. Ordinarily we sell more than half our crop abroad. Loss of this foreign market would force cotton growers to cut their acreage to less than half its normal size. In formulating the adjustment program for 1933 and for 1934 the administration did not ignore the possible effect on foreign competition. With an immense carry-over in existence, however, the danger of causing important foreign expansion was not imminent. Acreage reduction in the United States was appropriate for 1933 and for 1934. But it is obvious that a policy based on the existence of a large surplus may need to be changed as the surplus disappears. In what manner and to what extent our cotton production should be adjusted to the supply situation as it now stands should be carefully considered.

More than 50 foreign countries grow cotton, and their producers react to price changes just as ours do. In the period 1921–25, when bollweevil damage in this country threw doubt on our ability to continue supplying the world demand, foreign cotton acreage, excluding that of Russia, rose from 28,200,000 acres to about 40,800,000 acres or 45 percent. A part of that increase would have occurred, even with normal crops in the United States, since the depression and low prices of 1920 and 1921 resulted in an acreage in foreign countries in 1921 somewhat smaller than in the years immediately preceding. Following the price slump of 1929 foreign acreage declined, but it was increased by more than 4,000,000 acres in the 1933–34 season, when it was the largest on record. However, the estimated 1933–34 foreign acreage excluding Russia, whose marked expansion in cotton acreage under the Soviet Government has been

independent of the movement of prices in the markets of the world, was somewhat less than the previous peak. Early reports indicate that there was probably a further increase in foreign acreage from which the 1934–35 crop is being harvested. There are possibilities for substantial cotton-acreage expansion in India, Africa, Russia, China, and South America, and the extent of the expansion which occurs will depend to a considerable extent upon prices.

Foreign Competition Should Not Be Overemphasized

American growers should bear these facts in mind, without overestimating their significance. They do not warrant a return to unregulated production in order to hold this country's position in the world market. Foreign cotton production, in many countries, meets with great difficulties of climate, soil, labor, and transportation. Cotton production cannot be expanded very rapidly in these countries. It is easier for the United States than for the competing countries to adjust the output of cotton to a rising demand. No single large area anywhere else in the world is so well adapted to cotton production as the southern part of the United States. Our natural advantages in the production of this crop do not vanish when we eliminate the irregularities of supplies and adopt a program of production control. Production control is not a matter of rushing from one extreme to the other—but simply of continuing to adjust the production to the demand, foreign and domestic.

Specifically, the problem is to ascertain, as nearly as possible, the quantity of cotton that will give the best net return—not for 1 year or for 2, but for a long time. By curtailing production very greatly, we could temporarily raise the price of cotton to a high level. Simultaneously, however, this would encourage foreign competition. Opinions vary as to the price that would strongly stimulate foreign expansion. Much depends upon the value of the dollar relative to gold and to the currencies of other countries, and upon the price of cotton as compared with the prices of alternative products and with costs of production.

Up to the present the American cotton policy stands justified by its results. Foreign countries produced more cotton last year than they did the year before, but a large part of the increase would have occurred regardless of the cotton program in the United States, as most of the 1933–34 foreign crop had already been planted before our program was even decided upon. The prosperity of the American growers has been enormously enhanced by the adjustment programs conducted during the last 2 years, because these programs have helped to correct an unbalanced supply position. It does not follow that still more prosperity could be gained by creating an artificial shortage.

We wish to retain our foreign market; and this means that we must continue to supply it at moderate prices. But we do not wish to keep prices ruinously low on the assumption that any improvement through the elimination of the surplus will cause a loss of our foreign markets. We must not, therefore, permit an increase in foreign production to stampede us back into overplanting. Our cotton policy has succeeded thus far because it operated to make an adjustment to the demand. That is the formula for its success in

the future. It will be more difficult to apply, now that the problem is to steer between extremes. The principle, however, remains unchanged.

WHEAT

In the wheat adjustment, two elements are equally important—the cooperation of American farmers and the foreign response. This country produces wheat partly for the world market. Normally, therefore, the world market determines the price both for the wheat exported and for the wheat consumed at home. In exceptional circumstances, such as those that have prevailed during recent years, the American price may rise above the world price. But this is a wholly abnormal relationship, which could not endure if a normal crop were sold in the usual way. Ordinarily we have a substantial surplus for export, and as long as that condition continues it is necessary to combine the adjustment of production at home with an effort to obtain supporting action abroad. The United States could not assume the entire burden of bringing world wheat production into line with the world demand. Without exports, we would have to reduce wheat acreage to about 75 percent of our previous average acreage, and that is a greater permanent reduction than it seems desirable to make. Furthermore, this action would not suffice for the world readjustment unless other countries took themselves in hand.

Accordingly, the Agricultural Adjustment Administration coupled its program for adjusting the American wheat acreage with an attempt to enlist the cooperation of other countries, both exporters and importers of wheat, in a world adjustment. Such an adjustment is possible. Taking the world as a whole, yields of wheat are remarkably stable from year to year, despite annual variations in the yields of different countries. In other words, in the long run man is a very important factor in determining the production. The acreage as well as the weather is a governing factor. In recent years the world's wheat acreage has increased in spite of a declining world demand. Exporting countries and importing countries alike have an interest in promoting a more rational adjustment. This common interest found expression in the international wheat agreement of 1933, in the negotiation of which the United States took the initiative. Under the terms of this agreement, exporting countries accepted export quotas for the 1933–34 crop season and undertook to restrict their production in 1934, while importing countries promised not to encourage further wheat expansion within their own borders and to diminish their import restrictions as wheat prices advanced. The arrangement, a logical counterpart of our acreage adjustment, encouraged the hope of effective world cooperation.

Influence of Weather Conditions

Unfortunately weather conditions in both hemispheres upset all calculations last year, and to a still greater extent this year. Seasonal conditions do not affect the logic of acreage adjustment for the long pull, but they may seriously interfere with immediate action. Drought in the United States reduced the 1933 wheat crop to less

than 528,000,000 bushels, as compared with 932,221,000 bushels in 1931. On the other hand certain other countries, notably Argentina, had unexpectedly large crops, while France, Germany, and Italy, had phenomenally large crops for the second year in succession. This change in the situation prevented universal adherence to the export quotas fixed in the international agreement. Argentina would have had to denature a large part of its crop in order to comply with the pact, which required a reduction of shipments without any increase in the carry-over. Argentina declared itself unable to do this, and requested a readjustment of the quota. It proved impossible to reach an agreement before Argentina had to begin seeding wheat for the 1934 crop. In consequence Argentina has not made the promised adjustment in production for 1934.

But the agreement was successful in that wheat acreage in 1934 dropped not only in the United States but in Canada and Australia, and even to a slight extent in Argentina. Certain wheat-importing countries, including Italy, France, and Germany, reduced their acreage likewise. France and Italy conducted reduction campaigns, and France passed acreage-restriction laws. The influence of all these reductions combined, however, was negligible in reducing production, as compared with the influence of unfavorable weather in many countries. In 40 countries of the Northern Hemisphere, the estimated wheat production for 1934 is only 2,878,768,000 bushels, as compared with 3,149,007,000 bushels in the same countries last year. In the United States the crop was below 500,000,000 bushels, the smallest in 40 years. It fell over 100,000,000 bushels below domestic requirements, and foreshadowed a reduction of our domestic carry-over to normal by the end of the 1934–35 marketing season. This tremendous change in the supply position naturally lessens the immediate need for acreage adjustments, and makes world cooperation toward that end more difficult to achieve.

Elimination of the wheat surplus in the United States by 1935 is a possibility. Acreage adjustments and the weather have done in 2 years the larger part of a job that seemed likely to take 5 or 6. In consequence, wheat prices have risen. The average farm price in the United States in September 1934, was 92.2 cents a bushel, as compared with 32.9 cents in January 1933. But rising prices do not benefit farmers with little or nothing to sell. There is more calamity than benefit in the adjustment of supplies through drought. Yet acreage tends to rise if prices do, and acreage adjustment will be more difficult than it was before the surplus disappeared. Continued restriction of the American wheat acreage will be justified if competing countries likewise recognize the need for acreage adjustments, but not otherwise.

Limitations of Reduction Policy

Only by putting our wheat industry completely on a domestic basis could farmers get permanent price gains through acreage restrictions alone. Putting it on a domestic basis would be very difficult; for temporary price gains would tempt farmers back into large production for export. Lacking world cooperation, the United States will have to reconsider its whole wheat program, and possibly to contemplate renewed production for export at highly competitive

world prices. Within the United States returns to wheat farmers could be maintained above the world level, through making adjustment payments under the Agricultural Adjustment Act. Now that the wheat surplus of the depression period has disappeared, we must adjust the production with an eye to the whole situation, both foreign and domestic, and should not commit ourselves to a program of indefinite restriction, regardless of conditions abroad.

Within the United States the wheat-adjustment campaign has definitely increased the income of wheat farmers. Through processing taxes, the plan has paid its way. Growers have done their part, and the administration has distributed among them adjustment payments totaling more than $98,600,000. This sum was due on the 1933 crop, in accordance with the terms of acreage-reduction contracts. It was paid in two installments. In 1933 a sign-up campaign brought the growers of nearly 80 percent of the Nation's wheat into cooperative production adjustment. They undertook in 1934 to reduce their acreage by 15 percent from the 1930–32 acreage, and by 10 percent in 1935. The contracts covered 585,000 farms, aggregating over 52,000,000 acres, or 80 percent of the average wheat acreage in the years 1930, 1931, and 1932. Participating farmers withdrew more than 8,000,000 acres. Other farmers, however, increased their wheat seedings, so that the net reduction in seedings was approximately 7,000,000 acres.

Under ordinary conditions this reduction in acreage would have reduced the season's crop by at least 85,000,000 bushels. Drought of extraordinary extent and severity overshadowed the acreage reduction, and caused a far greater reduction in actual outturn. Under the adjustment program the return from wheat to cooperating farmers is the market price plus the adjustment payment. For the 1933 crop the farmers received average prices which, with the adjustment payments, brought returns for the domestically consumed portion very close to parity. The short crop of 1933, from which only 368,000,000 bushels were marketed, brought a cash income of $267,000,000 exclusive of the adjustment payments. The much larger crop of 1932, from which about 524,000,000 bushels were marketed, brought a cash income of about $195,000,000. This is an excellent illustration of the fact that moderate crops tend to bring in more money than do very large crops. It emphasizes the necessity of continued adjustment. From the still smaller 1934 crop, the growers will get about as much or more than they got from the 1933 crop. The adjustment payments will be unaffected. These payments constitute partial crop insurance. The adjustment checks are the only income some growers will receive in 1934.

Adjustment Payments For 1934–35

For the 1934–35 crop year the administration will make adjustment payments on the same basis as it did this year. These payments will total not less than 29 cents per allotted bushel. The acreage reduction required will be 10 percent of the base acreage, and the wheat-processing tax will remain at 30 cents a bushel. Probably the adjustment machinery will work better. Farmers have the necessary organization. They understand the program, and have acquired administrative experience. In 1934 they organized 1,400 local pro-

duction control associations to administer the adjustment plan in 1,757 counties. Cooperating with Federal and State officials, they put through 585,000 contracts so efficiently that only 1,413 remained unsettled on September 15, 1934. Most of these unsettled cases reflect unforeseen circumstances or legal complications. There have been very few willful violations of the contracts. There should be even fewer administrative difficulties in the future.

Nothing that has happened this year detracts from the value of the wheat adjustment. True, drought has reduced the output far more than the acreage cut alone would have done, and has emphasized the need for reserves against crop failure. It has not changed the logic of adjusting production to the probable demand. Adjustment as such remains a desirable condition, though it may come about in undesirable and painful ways. Had wheat acreage not been curtailed by the acreage reduction, the 1934 crop would have been somewhat larger; but the growers would have been worse off. As things were, many farmers received more income from each acre withdrawn than from each acre seeded. In the sections hardest hit, production would have been practically no greater had all the land been seeded to wheat, and forage production would have been less. The adjustment program furnished important crop insurance to producers while from the standpoint of the consumer it left the situation not greatly changed. There is enough wheat in the country for domestic consumption, but the surplus has been eliminated.

CORN AND HOGS

For several years prior to the passage of the Agricultural Adjustment Act corn and hog producers in the United States far oversupplied the demand for their goods. They had in corn about 15 million acres above reasonable requirements. They were sending to market annually millions of hogs more than the market could absorb at remunerative prices. Foreign takings of our hog products had declined so much more than our production that from seven to eight million hogs, which previously would have gone abroad annually, had to be sold in the domestic market. As a result the purchasing power of corn and hogs was less than half the pre-war average. It was too late, when the Adjustment Act was signed, to prevent another overplanting of corn. Moreover, a spring pig crop 4 percent larger than that of 1932 had been farrowed. But unfavorable weather over part of the Corn Belt indicated that the corn crop would probably be small. It was therefore not imperative to act immediately for reduction of the corn output. In the case of hogs, on the other hand, the situation in 1933 called for immediate action.

The increased number of hogs already farrowed and in the fattening pens, and the comparatively larger number of sows already bred for fall farrowing, foreshadowed heavy production. The June 1 pig survey showed a 13-percent increase over 1932 in sows bred to farrow in the fall. Accordingly, after consulting representatives of the corn-hog producers, the Agricultural Adjustment Administration launched an emergency program to reduce pig and sow numbers. In August 1933 it began buying pigs weighing from 25 to 100 pounds under a schedule of minimum prices, and also sows weighing not

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less than 275 pounds and due to farrow, at their regular daily prices for packing sows on the animal's full weight plus a bonus of $4 a head. In a buying program extending through September the administration purchased 6,188,717 pigs and 223,247 sows due to farrow. Many packing concerns at 80 points acted for the administration in these transactions. About 1,833,650 head of the pigs were large enough to process into meat. The lighter pigs yielded fertilizer, tankage, and inedible grease. Meat obtained from the heavier pigs and from the sows totaled more than 100 million pounds. It was distributed to needy families through the Federal Emergency Relief Administration.

This emergency program reduced market supplies of hog products for the 1933–34 season by more than 1 billion pounds, or about 10 percent of the average annual production. Toward the end of 1933 and during the early part of 1934 the Federal Surplus Relief Corporation purchased directly about 1,400,000 live hogs and approximately 100 million pounds of lard and cured products. These operations helped to keep hog products on a higher level through the winter and spring of 1933–34 than they would otherwise have held.

More Permanent Program

Then the administration considered a more permanent corn-hog program. In the past the gross value of the corn crop has been greatest in years of production 10 to 20 percent below the average normal. This fact, together with changes in the corn-hog situation in recent years, made it desirable that corn production for the United States as a whole in 1934 should be reduced 15 percent or more below the average for the 2 preceding years. In hog numbers a reduction of approximately 20 percent seemed desirable. The administration called these facts to the attention of producers and in consultation with their representatives drew up an adjustment program. It was improbable that all producers would participate. Therefore, in order to obtain the desired adjustment, the administration offered the growers a contract requiring the individual signer to reduce his corn acreage by 20 percent and his hog production by 25 percent. The contract was ready early in 1934, by which time county and community committees of producers had been organized to facilitate local administration of the work.

Approximately 1,160,000 producers, representing all the States, signed the contracts. In the Middle West, where the bulk of the commercial supplies of corn and hogs are grown, the contracts covered from 75 to 85 percent of the average annual production. On the acreage withheld from corn production, participating producers received payments from the Government at the rate of 30 cents a bushel on the estimated yield. For the reduction in hog numbers they received $5 per head for each 3 out of 4 head of hogs raised on the average from litters farrowed during the 2-year base period, December 1, 1931, to December 1, 1933. As in the case of the cotton-, wheat-, and tobacco-adjustment programs, funds for the corn-hog production payments came from processing taxes.

The 1934 corn acreage was materially reduced below the 1932–33 acreage. According to the July crop report it totaled 92,526,000

planted acres—12.3 percent below the 2-year average. The acreage reduction in the North Central States was 18 percent of the 2-year average. However, the acreage reduction reduced corn output far less than did the drought. Corn production in 1934 dropped more than a billion bushels below the annual average of about 2,600,000,000 bushels. Only about 300 million bushels of the decrease can be attributed to the average-reduction contracts.

Factors in Corn-and-Hog Income

Income from corn and hogs depends on several important variable factors, the separate influence of which cannot be accurately measured. Adjustments in supply are, of course, important. But there are other important factors, such as processors' and meat distributors' margins, marketing costs, consumers' incomes, and consumers' expenditures for pork and lard. On a given level of purchasing power, consumers as a group tend to spend annually about the same percentage of their incomes for pork and lard. In other words, their consumption of hog products varies inversely with the prices. On the other hand, the total amount of money taken for processing, distribution, and transportation varies directly, within reasonable limits, with the volume of hogs marketed. These conflicting tendencies complicate the problem of reckoning the specific influence of the supply adjustment. It must be remembered, too, that the early sale of pigs and sows saved about 70 million bushels of corn. The closest reckoning that can be made indicates that the net benefit of the emergency and supplemental-purchase programs substantially exceeded their costs.

Essentially the emergency program was a price-supporting and not a price-raising measure. It did not immediately bring about hog-price gains. It is extremely probable, however, that without the emergency program hog prices during the winter and spring of 1933–34 would have been below the extremely low price of December 1932. Marketings in November and December 1933 and January 1934 were very heavy, yet prices did not show more than an expected seasonal decline. It is not yet possible to estimate, with any approach to accuracy, the economic effects of the 1934 adjustment in corn and hog production. Not until the crops of hogs and corn of that period have been sold will it be practicable to figure out the results. Present indications, however, are that the benefits will be very substantial.

For example, the total cost of hogs to packers operating under Federal inspection was greater during the first half of 1934 by about $80,000,000, or 37.7 percent, than during the corresponding period of 1933. This cost figure included the processing tax which processors paid on all hogs slaughtered. The slaughter tonnage in the first half of 1934 was smaller than in the first half of 1933 by about 500,000,000 pounds, or 8.6 percent. For fewer hogs farmers received substantially more. In the first 6 months of 1934 the cost to packers per hundredweight of hogs slaughtered was $5.60, as compared with only $3.72 in the corresponding period of 1933. It should not be forgotten that the proceeds of the processing taxes went to producers in payments on their reduction contracts.

Supplementary Benefits of Adjustment

Besides improving the supply position and raising corn and hog prices, the adjustment programs yielded important supplementary benefits. Much of the acreage withdrawn from corn went into forage crops which resisted the drought better than corn would have done, and provided additional feed. Moreover, the emergency pig and sow program reduced hog production in advance of the drought. Hence it enabled farmers to carry forward to the 1934 and 1935 feeding seasons a considerable supply of corn that would otherwise have been consumed. In an unexpected manner, therefore, the emergency program forwarded production adjustment in the most constructive sense of the term. By conserving feed it mitigated the excessive influence of the drought upon hog production and shortened the swing of the pendulum. Also in areas where crops were almost completely wiped out and the livestock had to be sold, the reduction payments became crop insurance.

In October the Agricultural Adjustment Administration conducted referendum meetings to ascertain the views of producers as to the advisability of continuing the corn-hog adjustment through 1935. Forty-five States were represented in the voting. Approximately 69 percent of the farmers who voted declared themselves in favor of a follow-up program. Accordingly the Administration decided to offer a new plan as soon as the necessary provisions could be worked out. The plan will probably follow the general outline of the 1934 contract as to control requirements and benefit payments. Many local control associations arranged separate balloting for corn-hog farmers who did not sign contracts for 1934. One-third of the participants in this separate balloting voted in favor of a corn-hog plan for 1934. The others voted "no." Taking 1934 signers and nonsigners together, the favorable vote averaged about 67 percent of the total vote. About one-half of the producers eligible to vote in the referendum did so.

DAIRY INDUSTRY'S PROBLEM

Dairy farmers benefit substantially from marketing agreements under the Agricultural Adjustment Act, but these agreements do not accomplish all that is necessary. They cannot deal broadly with production throughout our far-flung dairy industry. Drought this year reduced the dairy output temporarily, and lessened the immediate need for planned adjustments of production to market needs. Such adjustments will be necessary sooner or later, however, because the dairy industry has more production capacity than the market requires. It cannot achieve prosperity simply by regulating the flow of dairy products into the market. It will have to develop means of controlling the supply.

Dairying is the largest of our agricultural industries, and perhaps the most complex. It is carried on in all the States, under extremely varied regional conditions. Problems that seem local to the dairymen immediately concerned are really national. Whatever affects the fluid-milk market affects also the market for butter and cheese and other milk products, and vice versa. Some areas have surpluses and others have deficits; and an adjustment program that ap-

peals strongly to the surplus areas may not look satisfactory at all to the deficit areas. Actually, dairying is not a single industry, but a group of related industries, each capable of helping or hurting the others. Unlike some of the other basic agricultural industries covered in the Agricultural Adjustment Act, dairying is on practically a domestic basis. This makes it peculiarly dependent on the level of domestic purchasing power.

In considering means to raise the dairy industry from the depression into which it fell after 1929, the above-mentioned facts must be regarded as fundamental. Important also are recent developments in prices and production. In March 1933 the index number of the farm prices of dairy products was only 71 percent of the pre-war average, as compared with 157 percent in 1929. Since April 1933, however, the index has risen markedly. In September 1934 it stood at 99 percent of the pre-war average. The price gain resulted partly from the general improvement that has taken place in business conditions and partly from the influence of the 1934 drought. Milk production is lower now than it was a year ago, owing mainly to reduced production per cow. As yet there has been no great change in milk-cow numbers, which are considerably above market requirements. Between 1900 and 1934 the number of cows and heifers 2 years old and older kept for milk on farms increased 70.9 percent, or from 15,253,000 to 26,062,000. Consumer purchasing power does not yet exist to support profitably the normal production of so large a number.

Gap Between Production and Consumption

Between 1900 and 1929 the increase in cow numbers merely kept pace with the growth of population. During this period, moreover, the market expanded through an increase in consumption per capita as well as through the growth of population. After 1929, however, milk-cow numbers increased at a rate faster than that required to keep pace with the growth of population. Furthermore, the consumption per capita declined. A widening gap had opened between production and consumption. In certain geographic divisions the increase in cow numbers after 1900 was much more marked than in others. Thus in the West North Central States, the East North Central States, and the South Central States the increases between 1900 and 1934 were 96.2, 71.2, and 98.2 percent, respectively. Hardly any increase took place in the North Atlantic States. These regional differences constitute a stumbling block in the way of Nation-wide cooperation in production control.

It is noteworthy, too, that creamery-butter production increased from 1,054,938,000 pounds in 1931 to 1.752,343,000 pounds in 1933. A marked shift took place from the production of farm butter to the production of creamery butter. There was also a shift from the production of milk for the manufacture of creamery butter to the production of milk for fluid consumption. These changes, like the regional shifts in production, have a significant bearing on the adjustment problem. Overproduction of fluid milk forces more milk into butter and cheese production and complicates the relationship between the producers mainly of fluid milk and those who produce mainly for the manufacturing plants. When the demand for dairy products fell off and overproduction appeared toward the end of

1929 numerous conflicts of interest developed among various dairy groups. As dairy production continued to increase in the face of a declining demand, these differences increased likewise.

Following the passage of the Agricultural Adjustment Act means became available for mitigating the struggle of competing interests. In its original form and through subsequent amendments the measure authorized production-adjustment and benefit-payment programs, marketing agreements, the removal of surpluses from the market, and the elimination of cattle affected with Bang's disease and tuberculosis. The administration did not immediately launch a program for adjusting production, but it removed quantities of butter from the market and sponsored numerous marketing agreements. Conditions, nevertheless, became worse, and toward the end of 1933 were critical. Accordingly the administration, in consultation with representatives of the dairy industry, attempted to work out a production-adjustment program.

Temporary Benefit of Butter Purchasing

In undertaking the removal of surplus butter the administration recognized that the benefit could be only temporary. It acted at the request of dairy leaders, who pledged their support of a more thoroughgoing procedure looking to the regulation of production as well as of marketing. Through various channels, the administration purchased 51,572,265 pounds of butter, including about 11,000,000 pounds through Land O'Lakes Creamery, Inc., a cooperative organization. Nearly all this butter, and also about 6,000,000 pounds of cheese similarly purchased, went into relief channels. The purchases reduced excessive storage holdings of butter and cheese without materially affecting the long-time situation as a whole. It had been expected that the dairy industry would follow up the surplus-removal program with a concerted attack on overproduction. Regional and other difficulties interfered.

In the spring of 1934 the administration invited dairy farmers and others concerned to offer proposals for improving the dairy situation. Many came in. They fell generally into the following categories: (1) Allotment-benefit payment plans; (2) restrictions on the production and sale of dairy products; (3) restrictions on the manufacture of oleomargarine; (4) reductions in cow numbers; (5) the drying-off of cows; (6) feed-reduction programs; and (7) Government advertising of dairy products. Some of these proposals were economically unsound. Others were beyond the scope of the Agricultural Adjustment Act. Others could not furnish quick results, and still others could not apply to the dairy industry as a whole. Finally, the administration offered an adjustment program for consideration by farmers at regional meetings.

The program contemplated benefit payments to farmers who signed contracts agreeing to reduce their sales. They were to reduce their marketings from 10 to 20 percent, and were to get payments of approximately 40 cents a pound on the poundage of milk reduced below their base poundage. It was estimated that the benefit payments would have totaled about $135,000,000. Funds to pay them would have been derived from a processing tax of 5 cents a pound on all sales of butterfat in all forms, and from a compensating tax on

oleomargarine. It seemed, when the administration offered this program, that continued heavy overproduction of milk was inevitable. It was, of course, impossible to anticipate the drought, and production under normal conditions would have greatly exceeded requirements.

Dairymen Not United

Dairy farmers, however, were not sufficiently united in favor of the program. In fact, they appeared to be about equally divided for and against it, or against parts of it. It is a fixed rule of the Agricultural Adjustment Administration that no program shall be put into effect unless a substantial majority of the producers affected indicate their intention to cooperate. Accordingly the plan was held in abeyance. Since then milk production has been so reduced by the drought that no general dairy adjustment program was needed during 1934. Reduced pasture and short feed supplies are tending to hold down production, and may even result in supplies smaller than would have been obtained by the proposed sales-reduction program. Prices of dairy products may go higher than they would have done under the program, and higher than is desirable. Nevertheless the benefit will not be distributed equitably among producers. It will go largely to those not affected by the drought.

Action under the Agricultural Adjustment Act to improve dairy conditions now includes simply: (1) The issuance of licenses setting minimum prices to producers and carrying market stabilization features; (2) the development or administration of marketing agreements for the butter, evaporated milk, and dry-skim-milk industries; (3) purchases of butter and cheese for distribution through relief channels; and (4) the removal of cattle afflicted with Bang's disease and bovine tuberculosis. Cattle buying in the drought-relief program of 1934 included, of course, the purchase of many dairy cattle, but mainly this took the place of normal culling.

Elimination of Diseased Cattle

The La Follette amendment to the Jones-Connally Act appropriated $50,000,000 to be used (1) in the elimination of cattle affected with Bang's disease and bovine tuberculosis, and (2) in the removal of surplus dairy and beef products. Of $30,000,000 tentatively allotted to disease projects, $17,000,000 has been set aside for the elimination of cattle affected with Bang's disease, and $12,000,000 for the elimination of those affected with bovine tuberculosis, $1,000,000 remaining unallotted. Farmers signing contracts are to receive indemnity payments ranging up to $20 per head for grade animals and $50 per head for purebred animals. It is contemplated that about 1,300,000 disease-infected animals will be eliminated over a period of 18 months. This program has already been put into operation, and will be stressed when the current glut of cattle markets engendered by the movement of cattle from drought areas has subsided.

SUGAR

By means of legislation passed in May 1934, the administration developed a comprehensive sugar program which provided the mechanism for the solution of difficult problems arising in an important

agricultural industry. The legislation embodied recommendations contained in a Presidential message to Congress dated February 8, 1934.

Sugar cane and sugar beets were made basic agricultural commodities under the Agricultural Adjustment Act and base quotas for continental beet and cane sugar were set forth. The Secretary of Agriculture was directed to ascertain the Nation's annual sugar requirements. He was empowered to allot quotas among the various insular and foreign sugar-producing areas; to establish marketing allotments for individual processors; to levy a processing tax on sugar; to include provisions governing labor conditions in sugar agreements; to purchase a substantial quantity of surplus beet sugar; and to enter into contracts with producers for acreage control.

Broadly speaking, the sugar program sought the following objectives:

(1) To retain sugar-cane and sugar-beet production in the United States at approximately the average level of recent years' production.

(2) To assure fair returns to the domestic producers by means of benefit payments made from processing tax funds.

(3) To stabilize sugar production in Puerto Rico, the Philippine Islands, the Territory of Hawaii, and the Virgin Islands at a level harmonious with consumption requirements of the United States and with the economic welfare of the various insular areas.

(4) To arrest the decline of the imports of Cuban sugar into the United States, so as to increase the Cuban market for American products.

(5) And, by reducing the duty on imported sugar, to prevent a rise in the price of sugar occasioned by the processing tax.

The Jones-Costigan amendment to the Agricultural Adjustment Act established a base quota of 1,550,000 short tons for continental beet sugar and 260,000 short tons for continental cane sugar. The legislation provided that the basis for determining the annual marketing quotas for the Territory of Hawaii, the Philippine Islands, the Virgin Islands, Puerto Rico, and for foreign countries should be the average quantities of sugar brought into the United States from the respective outlying areas for consumption in the three most representative years during the period 1925 to 1933. By proclamation of the President, taxes collected upon the domestic processing of sugar from the insular areas may be held as separate funds in the names of the respective areas, and are to be used for the benefit of agriculture through benefit payments for acreage reduction and for the expansion of markets and the removal of surpluses.

Comprehensive Program Authorized

In short, the act furnished the means for a comprehensive attack upon the problem of steadily increasing sugar production in the United States and insular regions, which occasioned a serious threat to prices and was primarily responsible for the substantial reduction in American exports to Cuba in recent years. The mechanism provided in the act was necessarily complicated by the fact that the United States depends on imports and receipts from the insular areas for about 75 percent of its sugar, so that virtually nothing

could be accomplished through domestic adjustments unaccompanied by regulation of imports and adjustment of insular production.

Action to apply the various provisions of the act went forward immediately after its enactment on May 9, 1934. A processing tax was levied on sugar of 0.5 cent per pound, raw value. Simultaneously, the tariff on sugar was reduced by an amount equal to the processing tax. By this means the administration obtains its funds for carrying out the programs for the benefit of producers without placing an additional burden on the consumer. To prevent the accumulation of surplus stocks of sirup, of cane juice, and edible molasses, and depression of the farmer's price for cane, the administration levied a processing tax on these commodities of 0.125 cent per pound of total sugar content, as compared with the tax of 0.5 cent per pound on sugar.

The sugar consumption requirements of the continental United States were established at 6,476,000 short tons, raw value, for the calendar year 1934, and quota regulations were issued accordingly. The marketing quota for United States beet sugar was 1,556,166 short tons and for cane sugar 261,034 short tons. The quotas for Cuba and the insular areas were: Cuba, 1,901,752.14 short tons, raw value; Philippine Islands, 1,016,185.68; Puerto Rico, 802,842.20; Territory of Hawaii, 916,550.16; and the Virgin Islands, 5,469.81. For foreign countries other than Cuba, a reserve of 17,000 short tons was set aside to be allotted subsequently. Quotas of refined sugar were also established as part of the total quotas, as required by the act.

On the whole positive and effective steps have been taken to stabilize the continental and insular sugar industries. At the same time adequate imports of sugar have been provided to preserve substantial foreign purchasing power for American agricultural and other products. The insular possessions will receive compensation out of the proceeds of the domestic processing tax placed upon their sugars. Processing-tax funds will provide annually up to $10,000,000 for disbursements in the Philippine Islands in the furtherance of agricultural benefit programs; $9,000,000 for the Hawaiian Islands; $8,000,000 for Puerto Rico; and $50,000 for the Virgin Islands.

Adjustment in the United States

In the United States a program has been launched for the adjustment of sugar-beet and sugar-cane acreage. Separate adjustment contracts have been drawn up for sugar-beet and sugar-cane growers. The contracts provide for adjustments of production, though not necessarily reductions, for the crop years 1935 and 1936, and for benefit payments for 1934, 1935, and 1936. The administration expects to make the first payment to cooperating growers before January 1, 1935, and another payment on the 1934 crop in the spring of 1935. It is estimated that these payments, the first of which will exceed $8,000,000 and the second of which will be approximately $4,000,000, will increase the average income of producers by more than $100. The provisions of the adjustment contracts are drawn so as to permit the application of the benefit payments as partial crop insurance.

RICE

In dealing with rice, a basic commodity under the Agricultural Adjustment Act, the administration moved to raise the income of the growers through marketing agreements rather than through a combination of processing taxes and benefit payments. It adopted this method because the rice industry is comparatively small and geographically compact, and because the rice growers have had considerable experience in cooperation. The administration negotiated agreements with the California rice industry and with the southern rice industry whereby the mills agreed to minimum prices and conversion charges and the growers undertook to control their production through acreage allotments.

The rice acreage of the United States nearly doubled during the World War. In 1920 it was 1,299,000 acres, as compared with 694,000 acres in 1914. Moreover, yields per acre increased gradually. As a result the production exceeded domestic requirements and put the American rice industry definitely on an export basis. In the 1921–22 season our rice exports amounted to nearly 20,000,000 bushels, as compared with only 3,000,000 bushels in the 1914–15 season. Subsequently the export movement declined, but it remained substantial. From 1926–27 through 1930–31 the annual rice exports ranged from 10,000,000 to more than 14,000,000 bushels. A material reduction in the rice acreage after 1930 did not take the industry off an export basis. The exports totaled 6,400,000 bushels in 1932–33 and the rice imports were very small.

This continuance of our rice industry on an export basis did not signify that an adequate export demand existed. On the contrary, the opportunity to sell rice profitably abroad steadily declined. Other countries assisted their producers with bounties and other forms of direct aid. Moreover, rice-importing countries were unable, owing to the depression, to purchase their normal quotas. Meantime the United States produced large crops. In 1930 and 1931 yields above normal on an unusually large acreage resulted in two crops of nearly 45,000,000 bushels each.

As a consequence of the reduced export demand and of our increased production, the domestic rice carry-over increased from 81,000,000 pounds in 1930 to 220,000,000 pounds in 1932. Though the carry-over declined in 1933 to 148,000,000 pounds, it remained the second largest on record, and prices dropped to a very low point. Rough-rice prices, which during the period 1921–29 averaged about $1.10 a bushel, fell to 78 cents a bushel for the 1930 season, to 48 cents for the 1931 season, and to 42 cents for the 1932 season. In short, the position of the rice industry was identical in principle with that of the wheat industry, the cotton industry, the tobacco industry, and the hog industry. Burdened with excessive production for export, it could not get remunerative prices even for rice domestically sold.

Agreement Included Crop Control

Accordingly, on September 25, 1933, the Agricultural Adjustment Administration approved an agreement, which included a crop-control program for 1934–35, for the California rice industry. Later an agreement and license for the southern rice-milling industry became

effective. In 1934 the southern agreement was revised to include a crop-control program. Parties to the California agreement are the Secretary of Agriculture, the rice millers of California, the Rice Growers' Association of California, and the independent rice growers' committee. Parties to the southern agreement are the Secretary of Agriculture and the rice millers of Arkansas, Louisiana, Texas, and Tennessee. As subsequently revised, the southern plan provided acreage allotments for individual growers. In both the California and the southern regions the production-control plan allots acreage among growers on the basis of their past production and gives an advantage in returns to the growers who cooperate.

In order to give the cooperating growers an advantage over noncooperators, the California mills pay 60 percent of the agreed price when growers deliver rice. The balance goes into a growers' trust fund. Cooperating growers share in the final distribution of the trust fund according to their production units, which are based on their past history. Noncooperating growers receive no share in the trust fund. Of the total rice acreage planted in California, approximately 93 percent is within the scheme. Southern growers who made application for production quotas will receive full payment of the price established by the marketing agreement for all rice sold up to the amount of their quotas. Signatory millers purchasing nonquota and overquota rice have agreed to pay the producer 60 percent of the price set in the marketing agreement and to pay the remainder in to a trust fund held for distribution by the Secretary. It is estimated that over 95 percent of the southern growers applied for quotas.

Object of Program Achieved

The control programs were undertaken largely to prevent an increase in rice acreage, and accomplished that purpose. The total rice acreage this year was 737,000 acres, according to the July 1 estimate, as compared to 769,000 acres last year. The September 1 estimate of production was about 36.5 million bushels, slightly more than that of 1933. Growers benefited from the marketing agreements in selling their 1933–34 crop. The average farm price for all grades and varieties of that crop was 76 cents a bushel, or nearly twice the average price received for the 1932–33 crop. The total carry-over in first and second hands on August 1, 1934, was considerably greater than that of a year ago, but stocks in wholesalers' and dealers' hands were unusually light. The Federal Surplus Relief Corporation purchased 50,000 pockets of rice, and as a result the net carry-over in commercial hands will be about the same as last year.

TOBACCO

Considerable progress was made during the year in adjusting the supply of the various kinds of tobacco to the demand and in improving the income of tobacco growers. Approximately 275,000 growers in the United States and 10,500 in Puerto Rico entered into adjustment contracts in 1934, under which production was reduced about 30 percent. The United States crop of approximately 1,000,000,000 pounds in 1934 is about as much below the level of world consumption of this tobacco as the 1933 crop was above that level.

Six marketing agreements were negotiated for the principal kinds of tobacco grown in the United States. Under these agreements domestic buyers agreed to pay higher prices for their purchases from the 1933 crop on the basis of reductions to be made in the 1934 crop. The quantity of tobacco purchased under these agreements aggregated 633,000,000 pounds, which was nearly half the total production in 1933. It is estimated that the tobacco program increased the market receipts from the 1933 crop by approximately $50,000,000 above what they would otherwise have been. In addition $28,000,000 was paid to tobacco growers in the form of rental and benefit payments.

Altogether growers received approximately $207,000,000 from tobacco during the current marketing year, compared with $107,000,000 during the preceding marketing year. This total income is close to what tobacco growers received for their 1930 crop, and is only slightly below the average for the last 10 years. Prices of tobacco in Puerto Rico increased about 40 percent after the adjustment program was started.

At the beginning of the marketing year for the 1933 crop there was in the United States a surplus of 900,000,000 pounds of all types of tobacco above the carry-over which would be considered normal for the rate of consumption then prevailing. The production-adjustment programs were undertaken to relieve the market of this surplus. Extreme differences in the conditions of production, market outlets, and prices, and the highly specialized nature of the problems involved, necessitated separate contracts for 11 different kinds of tobacco.

Effect of Monetary Policy

The increase in the price of gold during the past year from $20.67 to $35 an ounce had a stimulating influence on our export trade in tobacco, because of the increased purchasing power of foreign currency in relation to the American dollar. Tobacco exports from the United States during the year ended June 30, 1934, were 456,000,000 pounds, compared with 379,000,000 pounds a year earlier and 413,000,000 pounds 2 years earlier. Some increase of sales was obtained through exchanges with countries that export wines and liquors to the United States. Additional outlets may be found in negotiations conducted under the new Reciprocal Tariff Act, though progress will inevitably be slow.

The results accomplished by the adjustment programs demonstrate the importance of controlling the production of tobacco. From 1923 to 1932 the grower's share of the consumer's tobacco dollar declined from slightly more than 12 cents to 4½ cents. Meantime the share received by tobacco manufacturers in the form of profits increased from 5½ cents to more than 10 cents. In 1933 tobacco growers received approximately 10 cents of each dollar paid by consumers for tobacco products and manufacturers received about 7 cents.

The consumption of tobacco products is relatively more stable than the consumption of most other farm products. In 1923 the total world consumption of United States tobacco was approximately 1,225,000,000 pounds (farmers' sales weight), of which 725,000,000 pounds were used in the United States and 500,000,000 pounds in foreign countries. Total consumption gradually increased both in

the United States and in foreign countries until 1929, when it was about 1,400,000,000 pounds. Consumption of all United States types of tobacco declined from 1929 to 1932, and during the latter year was only 1,225,000,000 pounds, or back to where it was 10 years earlier, both in the United States and foreign countries. In 1933 the world consumption of our tobacco showed a small increase.

Flexibility in Contracts

Flexibility in the adjustment contracts has been an essential factor in facilitating the control of tobacco production. The acreage and production of tobacco on individual farms vary widely from year to year; hence in drawing up the various contracts it was advisable to give producers operating under different circumstances several choices as to the year or years used in establishing their base. After the sign-up campaign for some of the kinds of tobacco was under way, it became evident that additional choices of base would be required to make it possible for some growers to obtain equitable allotments, and additional choices were provided.

A unique feature of the tobacco contracts is that, with the exception of cigar leaf tobacco, they all provide for definite allotments of production on individual farms as well as acreage allotments. With specific allotments of production, such as those provided under the tobacco contracts, it is possible to determine more definitely the exact size of crop which is likely to be produced and to make adjustments in the quantity to be marketed. Under these contracts adjustments of production allotments may be made after the crop has been planted and before selling time, on the basis of current prospects for production and demand. The contracts for cigar leaf tobacco were offered growers for the 1933 crop during the planting season, and consequently there was but little opportunity for growers to increase the yield per acre of that crop. The 1933 plan for the cigar leaf tobacco is being continued in 1934, which offers an opportunity for determining the relative merits of the different types of contracts for tobacco.

Growers who participate in the tobacco programs receive two classes of payments. The first payment is made in the form of a "rental", and is at a uniform rate per acre for each kind of tobacco upon the number of acres taken out of tobacco production, regardless of productivity. The second payment—and the third payment, in cases where a third payment is provided—are based upon the net sale value of the tobacco grown on the farm. In this way the payment reflects the yield and quality of the crop produced, and thus more nearly compensates each producer in accordance with the opportunity he has given up because of participating in the adjustment program. This method of determining payments was found to be advisable in the case of tobacco, owing to the extreme variations in yields and prices of tobacco on different farms.

Approximately one-third or more of the total payments made under most of the tobacco contracts are rental payments, which are made regardless of production in the current crop. In the case of other payments, minimum rates are provided for in each contract, and growers are guaranteed at least these minimum payments, regardless of the volume of their production. In some of the contracts

the minimum rates are stated in terms of a specified number of dollars per acre of the rental acreage. In others, provision is made for a deficiency payment to be made on each pound that the grower's production may fall below his allotment. Insurance against a partial or total crop failure is thus provided.

Kerr-Smith Tobacco Act

The Kerr-Smith Tobacco Act, approved June 28, 1934, was passed by Congress in response to requests of a large number of tobacco growers, as a supplement to the tobacco programs inaugurated under the Agricultural Adjustment Act. It provides for the levying of a tax of 33⅓ percent upon the sale price of all tobacco of any type covered by a production-adjustment program, except during 1934–35 the tax shall not be applied to Maryland, Virginia sun-cured, and cigar leaf tobacco. The act further provides that if it is determined that a lower rate of tax would best effectuate its declared policy, the rate may be not less than 25 percent. For the crop year 1934–35, the rate of the tax has been established at 25 percent. The tax may be levied upon tobacco harvested during the crop year 1935–36 of any type covered by a production-adjustment program, provided three-fourths of the growers of that type favor the levy.

The act provides for the issuance of tax-payment warrants to all producers operating under a production-adjustment contract, and for the issuance of such warrants to noncontracting growers in each county up to an amount of tobacco equal to 6 percent of the number of pounds covered by warrants issued to contracting producers. Tobacco growers who did not sign adjustment contracts prior to the passage of the Tobacco Act were given 30 days from the date on which it was approved, June 28, 1934, during which to sign such contracts. All contracts signed during this 30-day extension period provide the same benefits and require the same performance as those entered into during the regular sign-up campaign.

With the very large sign-up that has been obtained under the tobacco contracts, and with the provision for issuing additional tax-payment warrants to noncontracting growers, it is believed that only a very limited number of growers will be required to pay the tax upon tobacco harvested in 1934.

UNEMPLOYMENT AND SUBSISTENCE FARMING

It is impossible to consider only the farmers in promoting farm recovery. Crop adjustments affect nonagricultural interests profoundly. They affect the price and the volume of the farm output, and thus influence both the cost of living and the employment that depends on the handling of agricultural goods. Moreover, by limiting farm production, the crop adjustments tend, though not in any serious degree, to create rural unemployment. Whatever restrains production reduces the need for man power. The Nation's farm program therefore creates certain responsibilities toward nonfarmers. This fact the Agricultural Adjustment Act recognizes in its declaration of policy, which lays down a course of action conceived in the national interest rather than in the interest exclusively of the farmers. It calls upon the community as a whole to do some things

for agriculture, on the assumption that the resulting benefit will be shared nationally. The idea, in short, is that farm relief will prove to be national relief.

In certain respects the implied obligation to aid agriculture only in ways consistent with the general interests creates no difficulty. Action taken to raise farm prices adds something to the cost of living, but provides compensation by improving the rural market for city products. It creates the urban purchasing power needed to absorb the costs. Consumers do not find the higher prices burdensome because the increased farm income flows into the channels of trade. There is a quickening of our whole economic life. In other respects, however, the problem is more complicated. Particularly is this the case in connection with unemployment, upon which as already noted the crop adjustments have a definite bearing.

In hard times the unemployed look naturally to the land. They cannot be refused access to it; and yet to admit them into agriculture unconditionally would involve removing certain restraints upon agricultural production. Here is a dilemma. On the one hand, the progress of agriculture absolutely requires a limitation of farm production and therefore of farm employment. On the other hand, national expediency forbids closing the rural country to the urban unemployed.

Crop Controls Cause Little Unemployment

The Agricultural Adjustment Act creates very little unemployment. Farm owners, and tenants with a reasonably secure tenure, do not become unemployed through crop reductions. Hired labor and certain types of tenants, notably the share-croppers of the South, may occasionally suffer. But the Agricultural Adjustment Administration endeavors to protect these groups. In cotton and tobacco contracts it stipulates that landlords as far as possible shall maintain their normal force of tenants or hired hands. By comparison with other causes of rural unemployment, such as the interruption of the flow of rural population to the towns and the flight of city people to the country, the influence of crop adjustments is negligible. Between 1929 and 1933 nearly 2,000,000 people left the towns.

Six Southern States last spring reported having on their relief rolls from 15,000 to 40,000 farm families per State. For the most part, however, these farm families had been thrown into distress by the depression. Undoubtedly the number would have been greater had the adjustment program not increased the income from cotton in 1933. Moreover, the great majority, perhaps 75 percent, were still on farms in one capacity or another. They were not entirely without means of self-support. Considering the country as a whole, the crop adjustments relieve far more unemployment than they create. Scores of towns and cities throughout the country, which 18 months ago were in the depths of depression, have picked up under the influence of restored farm buying.

It is nevertheless true that farm recovery, with its need for restraints on farm production, goes against the natural desire of the urban unemployed to seek refuge on the land. In this matter the agricultural interest—the necessity for farmers to curb their competition—must to some extent give way. There are many millions of

unemployed in the United States. Their maintenance is a public charge, which cannot be repudiated. About one-third of the families on relief rolls are already in the country or in country towns. Moving an increased proportion from the congested centers of population doubtless would reduce in many cases the expense of maintaining them. Living costs are much lower in the rural communities, and the country affords a chance for the unemployed to produce some of their own food. To some extent the shift is necessary.

A Counterweight to Farm Recovery

Such a shift tends to deprive commercial farmers of a part of their urban market. Moreover, it tends to increase farm competition. So-called "subsistence farming" cannot be entirely noncommercial. Inevitably it produces something for sale. This is a counterweight to farm recovery which farmers will cheerfully accept in an emergency. But they have a right to urge that its effects be tempered as much as possible. We ought not to adopt a defeatist attitude, and to say the only thing to do with urban unemployment is to push it into the country. That simply means dividing a reduced agricultural income among an increased number of persons. It is far better to push industrial recovery. Meantime, we must handle the situation with the least injury to established agriculture.

Subsistence farming has been suggested as a solution—i. e., farming not for the market but for the home table. This is a difficult aim. Farm families require a cash income to supplement what they can grow for their own use. Unless they can earn money off the farm, they must get it from the farm. Otherwise the subsistence farm does not furnish subsistence.

Established farmers have a right to insist that nonfarm sources of cash income be made available when the country establishes unemployed people on the land. Placing thousands of families on the land, with no other source of income, drives them into commercial farming. They may not produce any great quantity of goods for sale, but what they do produce will be sold at distress prices. Such fostered marginal production can do great harm. So far the movement to put city people on the land has run ahead of the provision for supplementary employment. People have been decentralized faster than industry, and established farming suffers. Part-time nonfarm work must go along with so-called "subsistence farming."

The task is full of difficulties, which must nevertheless be faced. Centralized industry grew up in its present locations in the pursuit of profit. To decentralize it, not primarily for the sake of profit but in order to furnish employment in new locations, should not be attempted hastily. In thus trying to improve the conditions of employment, the profit motive cannot safely be ignored. To do so may do more harm than good. Redistributing labor and industry over the countryside is a delicate operation. Yet not to try it means destroying the essence of the subsistence-farming movement, and turning it into an unregulated and uneconomic eruption of city people into commercial agriculture. Countryward movements of the unemployed should be accompanied by a sufficient expansion of local nonagricultural employment to provide a local interchange of factory and other goods for farm products. To expand farm production

for local consumption, without at the same time expanding industrial production for local consumption, would simply displace farm products from other regions. It would aggravate the unbalanced condition of agriculture, and would not work any net improvement.

Nature of the Problem Recognized

Relief agencies, both Federal and State, have this well in mind. In one State 49 percent of the unemployment-relief load is rural and 51 percent urban. The State relief agency will have urban-relief groups produce industrial goods, while rural-relief families produce food. Both types of production will be held within relief channels, and a system of exchange will give each person credit for his own production. This method should have wide application, since it furnishes unemployment relief at relatively low cost without seriously complicating farm readjustment. Another State has plans under consideration for establishing manufacturing or processing plants in country communities to furnish part-time employment. These establishments, it is believed, will provide a source of cash income both to urban-relief families newly moved into the areas served and to rural-relief families already there. In yet another State the relief authorities contemplate relocating good families whose adult members were farm-reared. Many such people wish to return to their old neighborhoods but not necessarily to resume farming.

Fundamentally, the question is whether poor folk in town and country should be supported in demoralizing idleness or helped to become self-supporting. Either method involves expense to the rest of the community. Which is the less costly, everything considered? Short-sighted views may prefer straight charity to obviate increasing the intensity of industrial or agricultural competition. But that involves attaching value to work for its own sake, without regard to the destination of the product. It means that the employed elect to work harder, so that the unemployed need not work at all. The other method, whereby urban and rural relief families employ one another through an exchange of services cuts down the relief bill, may have little harmful effect on commercial industry and agriculture and prevents social disaffection. There is nothing wrong with the idea. The danger is that we may not apply it thoroughly; that in practice we may not couple subsistence farming with adequate part-time employment.

Establishment of Subsistence Homesteads

The Division of Subsistence Homesteads of the Department of the Interior is promoting the true objective. Section 208 of the National Industrial Recovery Act appropriated $25,000,000 to be used to "aid in the redistribution of the overbalance of population in industrial centers" through assisting in the establishment of subsistence homesteads. Before the close of the fiscal year the Department of the Interior had approved plans for 58 projects, the majority of which are now under way. In each project there are from 25 to 300 homesteads.

Specifically the aim is to help poor families to get a more secure and more satisfactory living through a part-time combination of

industrial employment and subsistence agriculture. The homesteads are usually 1 to 5 acres in size. They are capable of producing a large portion of a family's yearly food supply. The cultivation of vegetables, fruits, truck crops, and the care of poultry, and in many cases a cow, comprise the agricultural operations on most subsistence homesteads.

Because the subsistence-homestead plan is a method of aiding in the solution of various social problems, rather than an object in itself, the projects vary considerably. First, there are garden homesteads for industrial workers. Projects of this type are located near industrial towns and cities, where the workers, while living in semirural communities are yet able to commute easily to and from their urban jobs. Such projects may tend somewhat to decentralize population and industry. In large urban areas, such as Los Angeles, Chicago, Youngstown, and Birmingham, the decentralizing trend develops within the urban districts through the establishment of suburban areas of subsistence-homestead communities. Small industrial towns, such as Decatur, Ind., Austin, Minn., Taylors, S. C., or Longview, Wash., offer good opportunities for subsistence homesteads under conditions favorable to industrial decentralization.

Projects for Stranded Industrial Groups

Then there are subsistence-homestead projects for stranded industrial groups. Great numbers of people formerly employed in the exploitation of natural resources have permanently lost their jobs through the exhaustion of the resources, as, for example, in certain abandoned coal fields of West Virginia. With the home production of food and shelter on the subsistence homestead as a basis, and with recourse to part-time employment in forests, newly established industries, or handicrafts, many previously destitute families are becoming self-supporting.

Rural rehabilitation sometimes calls for applying the subsistence-homestead plan to agricultural groups. The submarginal areas of the old Cotton Belt, of the cut-over lands of the Lake States, and of certain dry-farming regions of the northwestern Great Plains have been chosen as demonstration sites. Thus farm families have a chance to move from eroded, worn-out, or drought-stricken sections to subsistence-homestead communities located on good land. Intensive farming, primarily for subsistence, replaces extensive and wasteful cash-crop production. The crops produced for the market are usually not the staples in which surpluses exist. Moreover, the establishment of these new farm homes is offset by the retirement from cultivation of proportional amounts of submarginal land.

LAND-UTILIZATION PROBLEMS

Farm-recovery measures applied up to the present have been of an emergency character. They have been drastic and temporary remedies, necessitated by a collapse in foreign and domestic markets, a tremendous accumulation of farm surpluses, and the virtual bankruptcy of agriculture. How long it may be necessary to continue these expedients with various modifications we cannot tell. Full recovery of the agricultural market may be long delayed. It is

therefore necessary to transform the emergency program into a more permanent policy, whereby we may adjust production at the least cost, with the least disturbance to normal farming, and with the most encouragement to farm efficiency. We must move from emergency adjustments to long-time planning.

Essential to the welfare, not only of agriculture but of the Nation as a whole, is a better land-utilization policy. This involves systems of land tenure as well as of land use. It is concerned with all the principal land uses, including farming, forestry, recreation, and wildlife conservation. In any sound national economy a rational land policy must be the cornerstone. In this country we have tried many other means; we have not yet tried that. On the contrary, we have retained as a heritage from our pioneer epoch a seriously defective land-use method. Accordingly the Department of Agriculture has established a land-policy section in the A. A. A. which is cooperating with the National Resources Board, the Federal Emergency Relief Administration, and various other Federal and State agencies. It is studying means whereby land that should not be in agriculture may be withdrawn from it, and whereby land properly in agriculture may be devoted to the right crops in the right proportions. This is a social as well as an economic problem. It involves human beings as well as land.

In cooperation with the Federal Emergency Relief Administration, the Department is trying to find new locations for farm families now living in areas naturally unsuited to farming, or untenable as a result of economic changes or of the depletion of soil, timber, or mineral resources. This is a task which must be advanced slowly. Public agencies may desirably purchase poor cultivated lands gradually, but to do so quickly would be nearly impossible. Such action would run into difficulties of negotiation, of title examination, and of survey. It would involve much risk of excessive speculation and possible fraud. Still more important, it would suddenly displace perhaps a million farm families, for whom other employment would be hard to find. Furthering the retreat of agriculture from unsuitable land is a long-time operation. It should not be regarded as a means of effecting production adjustments rapidly. This year the Government is developing plans to acquire submarginal lands in about 30 States; but the purchases in view will total not more than 4,000,000 acres, only about half a million acres of which will be cultivated land. These figures give some idea of the difficulties.

It is, of course, extremely desirable to promote the retirement of lean acres from cultivation. The problem of submarginal areas is partly a problem of local maladjustments. Attempts to cultivate barren acres mean a wastage of human efforts and of natural resources. Frequently the land would be much more valuable in forests, recreation areas, or wildlife refuges. Important advantages result from the regrouping of rural populations, so as to obviate unnecessary costs of local government in sparsely settled areas. Action should be taken to prevent the reoccupying of abandoned poor farms. Such steps promote the welfare of the people immediately concerned, and harmonize with our national crop-adjustment programs. Our present emergency adjustments apply to good land and poor land alike; to well-farmed and ill-farmed land. Frequently they necessitate the disuse or less effective use of buildings,

implements, work stock, and labor. They may disturb the general farming plan and the rotation system, and complicate the relations of landlords and tenants. As rapidly as it can be developed, we should employ a more discriminating program, in which the permanent withdrawal of land unsuited to farming will play an important part.

Soil-Depleting Practices

As I mention elsewhere in this report, soil erosion in many parts of this country is undermining the foundation of economic and social life. But erosion is only one source of soil depletion—only one aspect of a process of soil mining which should be stopped. Through practices which became habitual in our pioneer period, and which continued throughout extensive areas, millions of acres have been ruined for cultivation. These areas in many cases may be restored to usefulness through reforestation or through their allocation to other nonfarm uses. A much larger area not yet abandoned is declining. Some of it was always submarginal. Much of it has become so. It should be acquired by public agencies which may find for it many profitable uses.

On much land that may continue in farms, permanent pasture and forage should be substituted for intensive crops, and systems of rotation should be introduced to check erosion and restore or maintain fertility. But to do this in many areas would reduce commercial production. Sometimes that would be entirely compatible with the farmer's immediate interest. Again it would not. Farmers, if left to themselves, would in many cases continue their soil-exhausting practices. As one remedy, the Department is studying the possibility of using crop-benefit payments to encourage types of farming adapted to soil conservation. It is examining the practicability of inducing farmers, through crop-adjustment contracts, to bring about collectively a more desirable allocation of the land in farms among different farm enterprises. It may eventually be possible for the Government to purchase easements which would give it the right to require certain practices tending to soil conservation. Other means may be developed gradually to replace the emergency crop adjustments with a long-time program to promote permanently efficient farming and social stability.

Farm holdings in many parts of the United States should be readjusted in size. In some areas they are too small and in others too large. Without Government initiative the necessary readjustment will not occur or will occur but slowly. Larger farming units in some regions will make possible a wider use of pasture and of soil-conserving crops. Credit policies could be shaped to promote the blocking up of small farms into larger units. It need scarcely be said that action to increase the size of farm holdings would have to be coupled with provisions for the relocation of many farm people, for obviously an increase in the average size of farm holdings may mean a decrease in the number of farm families. On the other hand, farm holdings are now too large in certain areas where creditor institutions and agencies have taken over considerable tracts without having the means to farm them well. Moreover, many plantation owners in the South can no longer operate their plantations by the old methods, which called for annual advances to croppers. In such

areas public agencies might help to establish farming on a family basis. In some localities changes in the average size of farm holdings would involve a less intensive, and in other localities a more intensive, use of the land.

No Fixed Adjustment Possible

In all agricultural planning, emergency and long-time alike, we must seek a continuing and not a fixed adjustment. We cannot accurately forecast the effective demand for farm products a year ahead, to say nothing of 10 years or 20. General economic recovery at home and abroad would change the whole situation. Further economic difficulties would change it in the opposite direction. Neither crop adjustments nor land planning can insure a continuously stable balance. Flexibility in production and in land policy is the only means by which stability can even be approached. We cannot expect to eliminate the tendency for production in particular crops to get out of line with demand; nor can we plan the general size of the farm plant and the general distribution of farm enterprises for a long time ahead. Every period of good times creates new farms. With every prospect of better conditions, real-estate interests stimulate the demand for land and eager individuals push into new areas. It is neither possible nor desirable to put agriculture in a strait-jacket. Nevertheless, we should constantly strive to prevent known wrong uses of land. Mistaken expansion, once it has occurred, tends to persist. Better means of prevention are urgently necessary. Even the lands still owned by the Government are not guarded against unwise use.

By authorizing the Secretary of the Interior to permit homestead entry only on suitable lands, the Taylor bill, which passed Congress at the recent session, provides a partial means of preventing further unwise settlement of the public domain. It applies, however, only to about half the total area. The public should have a voice in determining whether privately owned land as well as Government-owned land should be settled, because settlement obliges State and local agencies to build schools and roads and to furnish other services. They should not be compelled to bear this heavy expense for sparse and scattered populations and perhaps for very transitory settlers. Public agencies must furnish relief from the effects of unwise settlement. They are spending millions already to correct bad effects of our homestead policy, persisted in after the lands for which it was adapted had been taken up. They are spending considerable sums to aid families in moving from land which should never have been farmed. In land-use planning, a first essential is to prevent the repetition of past mistakes.

Much may be done by the States to promote sound methods of land use. Zoning may help to prevent unsuitable or hazardous settlement. Eventually this principle may come to have an important place in rural land policy, just as it has already in urban land policy. Wisconsin has adopted zoning ordinances in some of its cut-over counties, and several other States have made a beginning in rural zoning, though mainly in suburban territory. States may find it desirable to adapt their grants-in-aid policies toward the same general end. By this means they might guard against some of the abuses

that come from the occupancy of new areas by scattering settlers, while continuing to help the poorer districts in providing schools and other necessary facilities. In cooperation with the States, the Federal Government could outline areas unsuitable for settlement; it might also shape credit, emergency-relief, and crop-benefit policies to discourage unwise settlement. It might acquire easements which would authorize it to prevent the settlement of areas not suited to farming. In our land system Federal and State policies must go hand in hand. Land policies frequently are local in activity and initiative, but they should be national in procedure and scope and should serve national as well as local ends.

It need scarcely be said that land planning involves questions concerning not only agricultural lands, but also lands adapted to other uses. Indeed, we cannot entirely separate the agricultural from the nonagricultural uses of land in a well-rounded program. The depletion of forests, minerals, and game resources causes both urban and rural harm. It affects employment in both town and country. Many rural communities depend greatly on part-time nonfarm work. Vast areas of nonagricultural land, for which we have at present no constructive use, might be made profitable through Federal and State cooperation in developing a unified land policy. Large tracts formerly in private ownership are tax delinquent. Much tax-delinquent land may not reenter private ownership quickly and perhaps should not. But before public agencies can find good uses for this land, State laws affecting tax delinquency need, in many cases, to be modified; and Federal and State policies need to be harmonized to promote the acquisition and use of such lands by public agencies.

Social Aspects of Land Use

Another vital aspect of the land program is the human aspect. As competition for land increases, two harmful results develop. Land-hungry folk take up areas that should not be farmed, and capital charges tend to become excessive on all farm land. In planning for the welfare of the rural population we must consider both the amount and the distribution of the farm earnings. On land unsuited to agriculture, neither science nor toil can make the return sufficient. Even on good land, farm earnings tend to be absorbed in capital charges and to be more or less diverted from the farm population. Our present agricultural policy seeks a remedy for this twofold evil. On the one hand it strives to direct agricultural enterprises to the right crops and their right lands. On the other hand, it seeks to obtain for the farm operator a larger reward for his labor and management. But farm income in times past has risen greatly without permanently safeguarding farm welfare. What we are doing now to increase farm earnings will not produce a better final result automatically.

The welfare of farm families depends greatly, in short, upon the conditions under which men work the land. Our system of unrestricted, private ownership developed in a reaction against the restraints of earlier tenure. It served the country well enough during the period of agricultural expansion into new areas. But we see now that it conferred the right not only to use but to abuse natural resources and to burden the land with excessive capital charges.

Perhaps we have gone too far in allowing freedom in the transfer and use of land. Such freedom does not necessarily cause land to fall into the hands best able to use it. Individuals cannot always follow their long-time interest, to say nothing of that of the community. In seeking his own gain the individual, with his personal one-lifetime view, may squander soil and soil fertility. He may mine the soil and devastate the forests. In taking steps to guard against such evils in the future, public agencies would protect not only the community but the individual farmer. Wastage of natural resources originates in self-interest, but does not in the long run promote it.

Unrestricted property rights do not necessarily insure the welfare even of farm owners. Complete license to buy and sell land, and to use it in any manner that seems desirable, ultimately burdens the farmer with heavy fixed charges. As farm earnings increase, land values rise. Farmers obligate themselves for more than the land can earn continuously. A severe price decline ruins them. On over-capitalized farms, even a small decrease in the income from products sold may bankrupt the farm operator; it will certainly make his farm ownership illusory. It will tend to separate the ownership from the operation of the land, and to degrade the economic status of the farm family.

Growth of Farm Tenancy

For proof we have only to glance at the recent growth of farm tenancy in the United States. Farm tenancy is not good or bad in itself. It has advantages or drawbacks, depending on the conditions under which it develops. Under favorable conditions it enables farm operators of limited capital to become farm owners. It is a stage in their progress toward financial independence. Under other conditions an increase in farm tenancy may signify that farmers are meeting with increasing difficulties in their struggle for land. The type of tenancy we have in many parts of this country cannot be generally approved. It involves short tenure and lack of care for the soil. In the prosperous period that preceded the first post-war depression, tenancy increased in some areas because rising farm valuations made it more profitable to rent than to buy land. In the post-war depressions, tenancy increased because farmers who had borrowed heavily to buy or to improve farms could not meet their obligations. They lost their ownership status and became tenants. Some growth of tenancy is inevitable, when growing populations compete for access to desirable land. But a great increase in tenancy, reflecting bad financial organization in agriculture, is another thing altogether.

From the standpoint of better land use and also of better rural welfare, we need to correct the unwholesome features of tenancy. These are the migratory habits it fosters, and the disregard of soil fertility and long-time farm efficiency. In this country the average occupancy of farm tenants is about 2 or 3 years as compared with the average owner occupancy of about 14 years. In certain other countries land occupancy continues in the same family for generations. This is true of tenant occupancy as well as of owner occupancy. Tenancy need not mean brief occupancy, with all its bad results. Many European countries have systems of land tenure which modify some of the socially undesirable features of unrestricted land owner-

ship. In some countries the occupier has the right to use but not to sell the land, while restraints on inheritance prevent extreme and uneconomical subdivision. Some countries require that land shall be efficiently used. It may not be practicable in the United States to adopt these principles, but less drastic changes merit consideration.

Possibilities of Improved Tenure Conditions

It should be possible to promote a more secure tenure, to discourage speculation and absentee ownership, to compensate tenants for unexhausted improvements, and to help deserving small farmers toward land ownership. Such reforms would increase the farm operator's income, without damage to property rights. They are more necessary now than ever before, owing to the prevalence of urban unemployment, which obliges more people to stay on the land. In order that they may do so without unduly increasing agricultural competition, and without paying exorbitantly for the privilege, the conditions of land tenure should be modified. It may be desirable to plan for a larger number of small semicommercial or partially self-sustaining farm families, and for some reduction in the number of large commercial farms. Ordinarily, an increase in the farm population increases both production and fixed charges. As a result, the income of farm operators declines. In the circumstances with which American agriculture must now deal, improved conditions of land tenure would afford a partial remedy.

TYPE-OF-FARMING STUDIES

In projects for using natural resources to better advantage, and for aiding farm families to move from unsuitable land and to relocate in areas better adapted to furnish a livelihood, the results of farm-management studies have great value. Investigators in the Department and in the State agencies began farm-management work years ago to help in solving individual farm problems. Eventually it may prove most useful in broad social applications.

In the pioneer period and for long afterward farmers relied on experimentation and experience in developing their farming systems. On the whole the method worked well, but it was costly. Those whom it failed did not complain because they had expected to take chances. But the problem is different when public agencies undertake to direct the use and settlement of land. This is a tremendous social responsibility. It involves risks which only scientific knowledge can minimize.

Failure would involve consequences proportionate to the scale of the operations, and failure would be certain if blind experimentation were the only guide. To prevent it we must have detailed knowledge of the physical and economic factors involved as they affect the well-being of actual and prospective farmers. Failure will discredit directed resettlement far more than it discredited the old free-for-all method under which people regarded heavy casualties as a matter of course. But the most important reason for studying the problem carefully is that without careful preliminary study it will be impossible to do a good job.

Farm-management knowledge, derived from systematic study of the economic and managerial experience and problems of actual farmers, is a kind of generalized experience which may save thousands of persons from repeating the same individual mistakes. There are two general aspects of farm-management study, the results of both of which are useful in guiding social effort in resettlement of farms and other adjustment enterprises. The first is a broad study of agriculture and agricultural resources in their relation to the individual farmer's actual farming. This is usually termed type-of-farming research. The other is the more intensive study of the details of individual farm organization and operation, production costs, and farm practice.

The broader, or type-of-farming aspect of farm-management research had its beginning, so far as the United States Department of Agriculture is concerned, with the publication in 1923 of a bulletin by the late W. J. Spillman entitled "The Distribution of Types of Farming in the United States." Though at that time the author could not attempt any close localization of specific farming types, he showed the need to do so, and broke new ground by linking physical with economic considerations. Later investigators, encouraged by a popular response to Dr. Spillman's work, followed the line indicated to such good purpose that available type-of-farming data now delineate type-of-farming areas for the whole United States on a fairly localized basis. With material furnished by the 1930 census, Federal and State agencies pushed their studies further. They have detailed type-of-farming projects either completed or under way in more than 20 States.

Nature of the Study

Type-of-farming research, besides describing accurately what the farming is in each local area, involves a study of all of the things that influence agricultural development and that determine just how farmers farm in each area and under each specific set of conditions, economic and physical. It involves the classification of farm lands, the study of agricultural markets, and of industrial conditions and business trends. It is essentially a cause-and-effect analysis in which the causes are all the conditions and forces the farmer has to deal with, and the effect is the farming which results, together with the degree of its success or failure.

The other phase of farm-management research, equally important with type-of-farming studies in the guidance it furnishes for public efforts at improving the farmer's condition, is the study of the farm as an individual business and producing unit. In the beginning of farm-management research this was its entire scope. Through the examination of a limited number of farms, it tried to determine the essential elements of farm organization and operation leading to success. Its results had only limited application at first, because the study was not sufficiently localized and its sponsors tried to generalize too broadly from the limited conditions studied.

As such studies went forward, however, there was accumulated a vast amount of essential information contributing to the detailed understanding of farming costs, of the principles of organization and management, and of what is required to make a successful farm

and to make good farming. Such understanding is indispensable in the great social task of guiding the adjustments in agriculture.

Trial and Error too Slow Just Now

Short cuts to new types of land use may not be necessary or even advisable in normal times. They are imperative just now. Trial and error are too slow. Although farm-management research tends in general to uphold prevailing farm practice, it also shows that agriculture generally lags in adjustment to changing physical or economic conditions. Delay is the rule; and delay is costly. Moreover, the more rapidly conditions change the greater is the lag in the readjustment. With readjustment going forward, so to speak, under forced draft, and yet failing to keep pace with the breakneck rapidity with which the agricultural situation changes, we must learn by realistic tests what types of farming and what systems of organization and operation seem to have the best chance in the new conditions. Research cannot eliminate risk or furnish absolute assurances of success. But it can furnish better guidance than can be had otherwise. It is a means of anticipating the lessons of individual experience.

THE SHIFT TOWARD GRASS AND FORAGE

Permanent farm recovery requires full use of the farm plant in ways that will not depress prices. Aid may come from two sources—from improvement in the demand, foreign and domestic; and from changes in the size of the agricultural plant or from a shift from such crops as corn and wheat to those like grass and forage. With the prospects of an improving demand, and with proposals to withdraw land from cultivation under adjustment contracts and through the diversion of submarginal areas to nonfarm purposes, I have dealt already. Neither from any quick improvement in the demand, nor from the withdrawal of land from agriculture, are we likely to reach quickly a point at which capacity production will be continuously profitable. Necessarily, therefore, we must consider a major shift from excess acreage of surplus crops back to the balanced condition between cultivated and grass acreages which existed before the war.

Reducing production by using land less intensively would promote efficiency; for efficiency is not synonymous with intensity in farming. Frequently, as both livestock men and field-crop growers well know, it does not pay to strive for maximum production per animal or per acre. There is a point beyond which further expense to increase output means waste. This point of diminishing returns exists for agriculture as a whole, as well as for the individual farmer. To plant high-yielding crops on every possible acre is seldom good business.

A general shift toward hay and pasture and toward soil-improving crops would have marked advantages for American agriculture just now. It would help to readjust the production of cash crops, and would at the same time reduce costs of production considering agriculture as a whole. Furthermore, it would help to prevent erosion. In other words, a broad movement toward the less inten-

sive crops would tend to increase farm incomes now and to upbuild the agricultural plant.

Naturally, the plan cannot be put into effect to the same extent on every farm. Farmers with heavy fixed costs and with no chance to farm more acres as an offset to decreased production per acre, would have legitimate objections. Generally, however, the shift would reduce the pressure of supplies on the market, without throwing farm land totally out of use. It would advance the farm-readjustment program as a whole, with some advantage to every farmer. In order to square the general with the individual interest and to overcome difficulties on individual farms, it may be necessary to arrange for collective action under Federal guidance, in harmony with principles already familiar to the country through the A. A. A. adjustment programs. There is no reason why collective voluntary adjustment should not work as effectively in promoting a shift to grass and forage as it does in other directions.

Through benefit payments the Agricultural Adjustment Act has enabled many farmers already to increase their pasture and roughage. Further steps to that end would be facilitated should it prove practicable to place the adjustment contracts on a farm basis rather than on a commodity basis. Such a plan would apply the processing-tax and benefit-payment system to the general task of getting land from cultivated crops into grass and forage, and of encouraging a shift toward a less intensive type of farming. By this means the total farm output would be held more nearly in line with the demand year after year, prices would be increased, and operating efficiency would be maintained. Making agriculture less intensive would benefit directly such major cash crops as wheat, cotton, and tobacco, and would benefit livestock and livestock products indirectly. An average acre of hay or pasture will produce only about half as much feed as an average acre of grain; but since the unit is lower, a double advantage results. Prices go up and the expenses of production go down.

A Rapid Shift Impracticable

Such a shift cannot be accomplished quickly. It involves complicated adjustments in crops and in farm organization and management. In the Northeast much of the farm land is already in hay or pasture. In the Corn Belt there is more room for the shift. Farmers there have a wide range of crops from which to choose. For permanent pasture they can use Kentucky and Canadian bluegrasses, alfalfa, and mixtures of bluegrass and such grasses as redtop, orchard grass, meadow fescue, and ryegrass. For temporary pasture they can sow Sudan grass, rye, soybeans, oats, vetch, timothy, and the clovers. Such crops as sweetclover and soybeans can be used for soil improvement. In the South the chief need is for soil-improving and erosion-preventing crops.

In the wheat-producing areas on the western edge of the Great Plains the problem is more difficult. Some of the land there can be put into Sudan grass, some into crested wheatgrass, and some into sorghums for forage. Some land can be summer-fallowed. For the most part, however, acreage retired from cultivated crops in this region should, if possible, be allowed to revert to permanent pasture. In the Palouse area of the Pacific Northwest, the hilltop land, the

fertility of which has been much depleted, should be removed from cultivation and planted to grass. Such a procedure would help to control erosion, as, indeed, the increased use of grass and forage would in most areas. Recent surveys indicate that approximately 35 million acres of formerly cultivated crop land, most of which was once very fertile, have been forced out of cultivation by erosion. From an additional area four times as large the top soil has largely disappeared. A grass cover is an economical and permanent cure for soil erosion.

In 1934 the drought and also a seed shortage prevented rapid pasture development. It would be impossible in any event, however, to do the job in a single season. This Department, in cooperation with State agricultural agencies, is conducting experiments to determine the cost of establishing pastures, and the value of hay and pasture in producing milk and meat. It has published a pasture handbook. It is also studying how to reconcile individual and group interests. Unless the shift from cash- and feed-grain production to soil-improving crops and to hay and pasture can be made profitable for the individual farmer, it will not be made. An obstacle in the past has been the desire of competitive farmers to produce as much as possible, in order to maintain their income. As a result, the individual interest clashed with the group interest. To remove this clash is the special task of the A. A. A. A considerable proportion of the land taken out of cotton and tobacco went into forage crops and feed for home use. Much of the land taken out of wheat and corn this year went into hay, pasture, and forage. These facts indicate that the difficulty can be overcome.

Livestock Aspects of the Problem

Livestock aspects of the problem are not particularly formidable. Farmers have already reduced their hog production, and the purchase of drought-stricken beef cattle by the Government helps to adjust cattle production. A beef-cattle adjustment of broader scope is under consideration. Dairy production can be adjusted rather quickly to less intensive feeding, and poultry production likewise. It is, of course, wrong to suppose, as many nonfarmers do, that a shift from cultivated crops to grass and forage would increase the production of livestock and livestock products. True, pasture and roughage maintain animals exclusively, whereas cultivated crops produce human foods and textiles. But about 70 percent of our cultivated acreage produces livestock feed. Turning cultivated acreage over to grass and legumes would therefore reduce the total amount of animal sustenance available.

In 1919 the area used for pasture in the United States, excluding crop land pastured part of the year, was about 1,055,000,000 acres. This was 55 percent of the country's total land area. It was more than four times the area of crops used for feeding livestock. Nevertheless, the contribution of pastures to the sustenance of livestock was slightly less than the contribution of the crop land. There has not since been much change in the proportion of pasture to crop land, taking the country as a whole. But more than half the pasture is arid grassland and desert shrub land too dry for crop production. More than one-fifth is forest and cut-over land, the use of which for pasture is usually less important than its use for the production of

wood. It is not in such areas that the big opportunity exists to improve the farm situation by growing more grass and forage, but on the improved land—on the land in farms. Many farmers in all parts of the country could advantageously keep more of their land in permanent grass and legumes. They could increase the advantage by good care of pastures and by producing good quality roughage. This change will come about spontaneously to some extent. It is taking place already. Recognition of its economic soundness, possibly coupled with Government action to smooth out discrepancies between individual interest and collective interest, should forward it greatly.

More Grass Would Lessen Drudgery

There is another reason for the shift which should not be undervalued. Grassland farming takes less work than high-pressure plowland farming. Generally speaking, it provides a pleasanter farm life, with lower operating costs, less man-killing and woman-killing drudgery, and more leisure. This is as sound a business reason for the change as any of the cost-saving, price-raising features. Hustling used to be a part of the farm creed, but it can be overdone. To spare the farmer's labor, when to use it at the full means overproduction and low prices, is the most obvious common sense. In short, the considerations which make desirable a larger place for grass and forage in the farm economy touch the human as well as the monetary aspect of farming.

WILDLIFE CONSERVATION

The land-utilization program affords a long-awaited opportunity to restore and increase valuable forms of American wildlife through the establishment of an extensive system of waterfowl refuges and the improvement of environmental conditions for the birds. Millions of acres of land and water that originally produced an abundance of game, fur bearers, and fish were destroyed, so far as these resources were concerned, when subjected to unsuccessful agricultural operations. This factor has been one of the most important of all the causes that have contributed to the rapid decrease of wildlife during the past half century. The restoration of these tracts to productiveness in terms of forests and wildlife is a principal and worthy objective of the land-utilization program.

Under the restoration plan, $8,500,000 of emergency funds has been set aside for use by the Bureau of Biological Survey for the acquisition, development, and administration of wildlife refuges. Surveys have been completed or are under way on such tracts as are situated along the principal flight lanes of the migratory wild fowl. Acquisition has already begun. Areas acquired or in process of acquisition on August 6, 1934, include the following:

	Approximate acreage
Lake Mattamuskeet, N. C	50,000
Beltsville, Md	800
Mud Lake, Minn	50,000
Union Slough, Iowa	5,000
Wingo Swamp, Mo	15,000
White River, Ark	49,000
Des Lacs, N. Dak	75,000
Mouse River, N. Dak	80,000
James River, N. Dak	70,000
Lake Andes, S. Dak	16,000
Medicine Lake, Mont	15,000
Turnbull Slough, Wash	5,000
Lake Malheur, Oreg	80,000
Spalding Ranch, Calif	15,000
Upper Mississippi River Wildlife Refuge	1,000

These lands will be set aside as inviolate sanctuaries for migratory game birds. Because of their situation and character, the most valuable crop that they can produce is wildlife, and the areas will be managed for this specific purpose. Their usefulness will not be limited, however, to their effectiveness in increasing the supply of game, birds, fur bearers, and fishes, but will be reflected in benefits to agriculture and forestry and to human health and safety. The conditions most favorable to wildlife are identical with those that reduce erosion and promote flood control and soil improvement by the conservation of water resources and the production of heavy growths of vegetation for food and cover. The development of the refuge system will include the retention of higher water levels by the construction of small dams and dikes and the flooding of dry lands by diversion, employing inexpensive methods of construction. Pollution of water sources within these areas will be eliminated, and adequate fireguards will be furnished.

Scope of Wildlife Conservation

The development of wildlife as a national resource in connection with a general land-utilization plan should embrace not only national-forest, national-park, Indian-reservation, and State lands but should extend to parts of the unallotted public domain. A comprehensive system of Federal wildlife refuges contemplates including areas on the public domain that under proper administration would have a higher value for such game as mountain sheep, antelope, mule deer, and sage hens than for any other land use. On other parts of the public domain the plan contemplates control of the grazing of domestic stock, with due regard for the reasonable needs of the native species of game.

One million dollars from emergency relief funds has been set aside by Executive order for the acquisition of migratory wild-fowl refuges. One and one-half million dollars of the funds provided for the withdrawal of submarginal lands will be devoted to the acquisition of tracts peculiarly suitable for the production of waterfowl, fishes, and fur-bearing animals. Other submarginal tracts which, while not so well adapted to aquatic life, can be developed to meet the vital requirements of upland game species will be purchased direct by the Submarginal Land Committee and turned over to the State conservation agencies for administration as wildlife sanctuaries or demonstration areas. Three and one-half million dollars of drought relief funds will be used to purchase lands adaptable for wildlife sanctuaries within the drought regions and 2½ million dollars of Public Works funds will be available for engineering operations to restore and control water levels, to stop soil erosion, and to improve food and other environmental conditions on Federal wildlife refuges.

On March 16, 1934, the President approved the Migratory Bird Hunting Stamp Act, which provides for the issuance through post offices of a Federal hunting stamp at a fee of $1. The stamp must be in the possession of every person over 16 years of age who hunts ducks, geese, or brant. It is estimated that the annual revenue from the sale of these stamps will be between $600,000 and $1,000,000, of which 90 percent will be expended by the Biological Survey in the acquisition, improvement, and maintenance of sanctuaries for migratory waterfowl.

SOCIAL AND ECONOMIC ASPECTS OF FORESTRY

We solve only half the recovery problem when we stop producing surpluses. It is equally important to start producing something else. Curtailing production in certain lines without increasing it in others simply means creating more unemployment. There must be positive as well as negative readjustments; new jobs must replace old. Undoubtedly our greatest single opportunity to accomplish this end lies in forest improvement and conservation, through which we may furnish noncompetitive employment and permanent new sources of income. For much of our land forestry and agriculture are alternative uses. Fully one-third of the land in the continental United States is actual or potential forest land. There is no surplus of growing trees, but, on the contrary, an increasing need to guard against a future shortage. Forest industries can be developed to support many more people than they do at present without the slightest risk of glutting the market. Indeed, an increase in the forest uses at the expense of the agricultural uses of land would tend strongly to improve the general economic balance.

Accordingly the Department, through its Forest Service, is giving greatly increased attention to the protection, the development, and the permanent upbuilding of our forests. It is accelerating the program, not only to furnish noncompetitive employment on the land and to lighten the burden of relief but to put our timber on a sustained-yield basis—to get it handled as a crop and not as a deposit of ore. In this great enterprise three requirements stand out: (1) The acquisition of forest land by public agencies; (2) the restoration of this land to profitable timber production through fire prevention, replanting, and judicious cutting; and (3) extension of adequate fire protection to a larger proportion of private lands with recognition of the fact that private owners should cease "butchering" the timber, and should make provisions for future crops as they cut. In all three directions progress can be reported. Land acquisition by public agencies has been speeded, forest improvement has been forwarded through a public-works program, and forest industries under N. R. A. codes have assumed definite responsibilities for maintaining the productivity of timberlands.

As is well known, the Forest Service has battled for many years against short-sighted practices in the timber industry. This country's timber industry began with enormous raw resources—with virgin stands of timber against which no one had any charges. It strove to get out the timber as quickly as possible, and never thought of restoring the growth. Founded and financed on this basis, the industry counted on a short mill life, and on quick liquidation of its investment. In all parts of the country we can see the results in sawdust piles and abandoned towns. Many forest communities that seem still to thrive are nearing the junk heap; they are taking out forest wealth much faster than it can be replaced. If they keep up their present rate of cutting, they will be finished within a few years. In an extensive western area that had 25 sawmills a quarter of a century ago, only 4 remain. There has been an enormous shrinkage in the timber crop. It is the same in the South. In one area typical of many, timber companies removed all the virgin timber, without leaving even seed trees. Fire

caused more destruction. Now the mills are gone, the county bonds are in default, and half the population is on relief.

Difficulty of Reform

Against such practices it is difficult to make headway, though the forest industries themselves recognize the need of reform. As in other phases of our economic life, the principal obstacle is unregulated competition. Left to themselves, and forced meanwhile to engage in a ruthless struggle for business, the timber companies find it impossible to think of the future. The impulse to cut without providing for regrowth outweighs the public interest in conservation. Public regulation of timber holdings is necessary, and also a fundamental readjustment in the prevailing method of financing the forest industries. Together, these things will promote a sounder forest economy, and lead to permanent communities rather than to abandoned towns. Along with public regulation of private timber holdings should go an extension of public forest ownership; for throughout large areas the problem of forest care and improvement is such that only public agencies can deal with it effectively.

Social as well as economic considerations vest forestry with a public interest. Living in or near the national forests alone are more than three-quarters of a million people partly or wholly dependent on these forests. Forest industries create local markets for farm products, provide work off the farm, increase community advantages, and lighten the burden of taxes. Forest improvement occupies people who might otherwise engage in commercial farming or in other overcrowded work. Forest recreation and wildlife afford sources of income. Forests should be protected and improved, not only to insure the Nation a continuous and adequate supply of forest products but to furnish employment and build stable communities. Moreover, their indirect value as a source of income is enormous. The forests help to protect growing crops, to control erosion and stream flow, and to conserve water for city needs and for power, irrigation, and navigation.

Hitherto our forest resources have furnished employment mainly through exploitation—through wasteful cutting and through practices that made restocking difficult or impossible. There is a better way. Forests may still furnish materials for the lumber industry, the pulp and paper industry, and other forest industries. At the same time they may be conserved and improved as a source of future supplies by means which furnish employment now and furnish also the guaranty of increased employment in the future. It is possible to remove timber in large quantities and leave the land in a better condition to grow more timber. This is an important object of the emergency conservation program. Following the creation of the Civilian Conservation Corps, the Government put to work in the forests more than 250,000 unemployed young men and boys, many of whom had never had regular work before. They improved fire-prevention facilities, abated soil erosion, combated tree pests, and improved forest conditions in other ways. Eighty percent of the work was planned and supervised by the Department's Forest Service. The social value of the enterprise, immediate and prospective, is certainly very great.

An Economic Investment

On the economic side, the work was essentially an investment. It made the forest properties more valuable. The Federal public-works program in forestry had a counterpart in the States that have State forests. Also, the Federal Emergency Relief Administration, the Civil Works Administration, and the National Recovery Administration made funds available for the same general purpose. The Forest Service supervised a total expenditure, Federal and State, of more than $200,000,000 for regular and emergency work in the forests. Manifold returns may be expected. Public administration of forest lands takes into account many things that private administration inevitably neglects, such as recreational values, grazing and wildlife values, erosion control, and water supplies. Forest conservation and improvement, as conducted during the last fiscal year through regular and special appropriations, works toward a coordination of forest uses, present and future, for the good of the entire Nation. It is an investment which may be relied on to produce dividends.

The Federal program of land acquisition was accelerated during the fiscal year. The Government acquired or placed under contract of sale 4,206,560 acres of privately owned forest land, as against 672,425 acres in the previous year, and a maximum of 547,925 in any earlier year. It is continuing the accelerated purchase program and preparing to establish shelter belts of planted timber throughout a hundred-mile strip of the eastern Great Plains area as a means of retaining soil moisture, checking soil erosion especially by wind, and facilitating the continued agricultural use of the land. The shelter-belt project will furnish part-time employment to many farmers.

State Participation Essential

To carry through on a national scale the measures of forest-land acquisition, reforestation, and forest improvement necessary to make the forest resources fully useful will be a prodigious long-time task. Extensive State participation is essential. The Department last year recommended an acquisition program involving both Federal and State action and placing at 224,000,000 acres the total to be acquired by public agencies within a suggested 20-year period. Since the accomplishment of this program turns partly on the willingness of the States to participate, it is obviously important to seek an understanding with each State as to the character, amount, and location of the land for which public ownership is necessary or desirable, and as to how the task involved should be apportioned. The National Resources Board and the Land Planning Division of the Agricultural Adjustment Administration are assembling data relating comprehensively to land and water use throughout the country. This study includes the whole problem of forest-land use, forest-land ownership, and the public forest-ownership program necessary to carry out a national land-use plan. State agencies are cooperating.

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NEW FARM LEGISLATION

Congress at its last session passed much legislation of importance to agriculture, including amendments to the Agricultural Adjustment Act, new laws to regulate the production of cotton and of tobacco, a measure authorizing the President to negotiate reciprocal trade agreements with foreign countries, an act authorizing the creation of grazing districts out of the public domain, an amendment to the bankruptcy act granting extensions of time to distressed farmers for the payment of their debts and mortgages, and an emergency appropriation act providing, among other items, $525,000,000 for relief in drought-stricken areas.

Amendments to the Agricultural Adjustment Act added cattle, peanuts, barley, rye, flax, grain sorghums, sugar beets and sugarcane to the list of basic agricultural commodities. They authorized an appropriation of $200,000,000 for dairy- and beef-cattle adjustments, and an appropriation of $50,000,000 to buy dairy and beef products for relief distribution and to reimburse farmers for cattle destroyed in campaigns against tuberculosis and other diseases. The sugar amendments authorized a domestic production of 1,550,000 tons of sugar in the beet-sugar area and 260,000 tons of sugar in the cane-sugar area, and empowered the Secretary of Agriculture to make allotments for sugar imports. They provided also for processing taxes to finance the sugar control, and authorized the Secretary to purchase surplus sugar, not in excess of 300,000 tons, produced in the beet-sugar area and to distribute it for unemployment relief or to dispose of it in other ways consistent with the policy of the act. Still other amendments to the Agricultural Adjustment Act modified provisions relating to the processing tax.

Under the Bankhead Cotton Control Act Congress limited the amount of cotton marketable tax exempt from the 1934 crop, and provided for the collection of a tax from cotton sold in excess of the tax-exempt amount. The Kerr-Smith Tobacco Control Act applied a similar principle to tobacco and imposed a sales tax on all tobacco harvested in 1934–35 except Maryland tobacco, Virginia sun-cured tobacco, and cigar-leaf tobacco.

Tariff Act Amended

To facilitate the expansion of foreign markets Congress amended the Tariff Act of 1930. It authorized the President, whenever he finds that any excess duties or other import restrictions of the United States or of any foreign country restrict our foreign trade unduly, to enter into trade agreements with foreign countries. These agreements are not subject to Senate ratification.

By the Taylor Grazing Act Congress authorized the creation out of the public domain of grazing districts to comprise not more than 80,000,000 acres. The Secretary of the Interior is to administer these districts under a system permitting bona fide settlers, residents, and other stock owners to graze livestock. In addition the act authorized the Secretary to permit homestead entry in tracts not exceeding 320 acres within such grazing districts when it appears that the land is more valuable for cultivated crops than for native grasses.

New bankruptcy legislation for the benefit of agriculture went into effect under the Frazier-Lemke-McKeown Act. This measure permits farmers who have not succeeded in getting their indebtedness adjusted to petition for bankruptcy and for an appraisal of their property. Appraisers appointed by the court will appraise the property "at its then fair and reasonable value, not necessarily the market value at the time of such appraisal." Then, with the consent of the lien holders, the property may be sold, in whole or in part, to the debtor on certain prescribed terms. These call for the payment of 1 percent interest upon the appraised price for the first year, and thereafter for the payment of a certain percentage of the appraised price, with interest at 1 percent on the unpaid balance, until the end of a 6-year period, when the remaining unpaid balance is due. Should the creditors reject the proposed arrangement the court must stay all proceedings for 5 years during which time the debtor may retain all or part of the property on payment of a reasonable rental. At the end of the 5 years, or earlier, the debtor may pay into court the appraised price of the property subject to reappraisal at the request of any lien holder. In the absence of such request, payment of the appraisal price will fully discharge the debtor and give him title to the property.

The Emergency Appropriation Act made available $525,000,000 for relief in stricken agricultural areas to be allocated by the President to supplement previous emergency appropriations and for several additional purposes. Another measure authorized a $40,000,000 appropriation to the Farm Credit Administration for crop-production loans.

Proposed A. A. A. Amendments

Certain proposed amendments to the Agricultural Adjustment Act did not come to a vote. These related to the enforcement of marketing agreements. All the major producers' organizations, including the National Grange, the American Farm Bureau Federation, the Farmers National Grain Corporation, and the National Cooperative Council endorsed them, as likewise did the Agricultural Adjustment Administration. Their purpose was to restate in explicit terms what the administration believed to be the original intent of Congress. Misleading statements stirred up considerable opposition. Opponents charged that the amendments represented an attempt to enlarge the powers of the Agricultural Adjustment Administration and it proved impossible to smooth out controversial points before Congress adjourned. In the original Agricultural Adjustment Act Congress empowered the Secretary of Agriculture (1) to issue licenses permitting processors, associations of producers, and others to handle farm products in interstate or foreign commerce; (2) to suspend or revoke licenses for violation of the terms and conditions thereof; (3) to fine anyone handling farm products in such a manner without a license; and (4) to require licensees to furnish reports and keep suitable accounts. In attempting to enforce these provisions the Administration met with resistance. Minorities took advantage of technicalities and ambiguities in the law. They strove to prevent the enforcement of licenses and consequently to defeat the purpose of marketing agreements.

Generally it is essential to couple marketing agreements with licenses enforceable against obstructing minorities. Whatever blocks enforcement of the licenses blocks the purpose of the agreements. Accordingly the amendments in question sought to remove uncertainties in the law, and to specify more clearly the Secretary's power to enforce these marketing arrangements against the recalcitrant few. In several cases the lower Federal courts have decided the licensing powers exercised by the Secretary of Agriculture were properly exercised. Litigation and other obstruction nevertheless continued and seemed likely to increase pending a more definite statement of the Secretary's licensing powers.

Marketing agreements covering a great variety of crops were in effect when the amendments were proposed. These agreements covered fluid milk and cream, tobacco, peanuts, rice, California deciduous-tree fruits, Northwest deciduous-tree fruits, California, Texas, and Florida citrus fruits, Flame Tokay grapes, clingstone peaches, canned and fresh asparagus, canned olives, walnuts, raisins, turpentine, and rosin. Licenses regulated the distribution of milk in many large cities. Not including increased returns to tobacco and milk producers, the benefit to farmers from marketing agreements and licenses in the 1933–34 season ran close to $30,000,000. It would have been larger had the opposition of minorities not hampered the making and enforcement of agreements.

Opposition of Various Groups

Certain large distributors, processors, and handlers of farm products opposed the amendments. There was some opposition in Congress. The opposition contended the proposed clarification of the Secretary's powers involved an extension to him of additional powers. One objection was that the amendments would have permitted the licensing of individual farmers. Therefore the Administration proposed that a majority of producers affected by any license should have an absolute veto power over any of its provisions. One amendment would have allowed the Secretary, in making contracts with farmers for the reduction of basic crops, to stipulate that the production of nonbasic crops should not be increased. This provision, it was declared, would compel farmers to reduce their total production. No farmer, however, would have been obliged to sign any such agreement. There was nothing in the amendments to change the voluntary character of the adjustment programs. The Senate Committee on Agriculture and Forestry favorably reported the amendments, but they did not come to a vote in Congress.

GRAIN FUTURES

The Grain Futures Act should be amended and extended. The present law, enacted in 1922, has served well the purpose of a preliminary measure. It has provided a broad foundation of experience upon which to base more complete regulation of the speculative markets. However, the need for amendment and enlargement of powers under the act has been apparent for many years. At the last session of Congress a bill to amend the Grain Futures Act, H. R. 9623, passed the House of Representatives but was not reported out by the Senate

Committee on Agriculture and Forestry in time for Senate action before adjournment. One of the important provisions of this bill was the power given to place a limit upon purely speculative trading on the part of any one person or firm. It provided also for the licensing of commission firms accepting orders from the public and prohibited, under severe penalty, the bucketing of customers' orders, the making of wash sales and fictitious trades, and cheating and fraud in connection with the handling of customers' orders.

There is, of course, a rather wide-spread opinion that speculation is harmful in itself and that curbing or prohibiting entirely dealings in futures would be desirable. The stubborn opposition of the exchanges to Government regulation of any kind, touching even practices which the exchanges condemn, has been largely responsible for this still growing opinion. Thus far the Department has counseled a regulatory policy, one which would preserve and strengthen the futures trading system. It has supported the view that a moderate amount of speculation in commodities gives life and liquidity to the market for such commodities and thus serves a useful economic purpose. But it cannot accept the view that in order to have those benefits it is necessary also to tolerate the evils of unregulated speculative markets, which in the long run far outweigh any possible good results.

For a late example of harmful speculation we need only go back to what happened in July 1933. Speculation in grains, induced in part, perhaps, by talk of monetary inflation, resulted in a much too rapid advance in prices during the period from June 20 to July 18. Commission houses, anxious for business, took and carried large speculative accounts without adequate margins. Large speculative lines were built up out of paper profits, and when the market finally lost its momentum there was no reserve power to sustain values. Overextended traders could not stand even a small price recession. Consequently, on July 18 and 19, wheat prices broke practically 30 cents a bushel and a serious financial crisis was averted only by the fortunate turn of circumstances.

The effect of the market crash just mentioned was to destroy entirely the morale not only of the professional speculators but of those who speculate moderately and on the basis of conservative appraisement of values. That experience so frightened the speculatively inclined that the grain markets suffered by it for a full year afterward. In this case speculation helped boost prices for a short time, but to farmers who were getting ready to harvest their crops at that time it gave only a false hope. Instead of benefiting by the price advance they reaped the inevitable fruits of overspeculation—extended market stagnation and a price dominated by fear psychology.

FOOD AND DRUG CONTROL

That the existing Federal Food and Drugs Act has sharp limitations is generally recognized, and the Department has long advocated stronger legislation. In 1933 it prepared a new food and drugs bill, which was introduced in the Senate and considered by the Senate Committee on Commerce. Two hearings resulted in material modifications of the draft. In March last the committee favorably re-

ported the revised bill (S. 2800). This measure retained most of the provisions advocated by the Department for the protection of consumers and would have controlled the traffic in food and drugs more effectively than the existing law. In addition, it would have regulated the cosmetics trade and the advertising of foods, drugs, and cosmetics. Unfortunately, the bill did not come up for passage. At the next session of Congress the Department will again request the introduction of an adequate food and drugs bill.

The measure considered at the last session contained nothing new or startling. It simply provided means to deal with needs that have become more and more evident in recent years. Officials charged with the duty of protecting the public health have time and again recommended the essential features of the measure. Like the existing Food and Drugs Act, it would have benefited all honest manufacturers as well as consumers. Nevertheless, bitter opposition developed. The opposition came not only from interests not too scrupulous of the public welfare but from reputable manufacturers, and even from some consumers, whom misrepresentation of the bill had misled.

Under the Sherley amendment to the existing Food and Drugs Act the Government has the formidable obligation of proving that the claims made in the labeling of patent medicines are both false and fraudulent. This requirement, which the proposed bill would have changed, has been one of the most serious handicaps enforcement officials have had to meet. In one case, that of a horse liniment sold as a cure for human tuberculosis, the Government spent $75,000 over a period of 10 years trying to get the false claims off the label. Though the first case was tried in 1922, only in March of this year was the manufacturer at last brought to book and sentenced to a fine of $2,000. Another provision exempting any food product sold under its own distinctive name from all restrictions except those relating to the addition of poisonous or deleterious ingredients had no counterpart in the new bill.

Besides cosmetics and advertising, curative devices and contraptions, and products like the so-called "reducing agents", which are now immune, would have been brought under control. Provisions as to labels were considerably amplified to enjoin not only the truth but the whole truth, that the consumer might have sufficient information to protect both his health and his pocketbook. The bill also gave the Federal Government authority to set up a standard of quality and identity for all food products, and to establish safe tolerance for poisons in foods. As the light fines imposed under the present law seem to be regarded by some manufacturers as no more than license fees for carrying on an illegitimate, if profitable, business, the bill provided more drastic penalties, with injunctions against chronic offenders.

Right of Self-Medication Not Denied

One false objection was that the bill denied the right of self-medication. Actually it would have made self-medication safer. It would have driven from the market drugs that are dangerous for the layman to prescribe for himself and would have permitted only such claims for home medicines as they could fulfill. Another

groundless objection was that the proposed law would have doomed advertising by insisting on the truth. This charge involves the ridiculous assumption that American business depends on dishonesty. Still another misrepresentation was that the bill would have allowed only factual advertising. The Supreme Court has definitely recognized "trade puffing" as legitimate.

False advertising should not be continued without restraint. In proportion as buying power goes for harmful things consumers have less to spend for things that are worth while and honest advertising is less effective. Honest industry should welcome an advertising standard to which its practice may profitably conform. Advertisers can tell the truth and still do business profitably.

Opponents of the proposed food and drugs bill alleged also that it conferred czaristic power upon the Secretary of Agriculture. This allegation had mainly to do with provisions authorizing control of food and drugs traffic through licensing, where the public health could not be protected otherwise. Opponents objected likewise to a provision for the establishment of permissive supervisory inspection. Subsequently the sea-food industry requested this type of regulation for itself. It was granted through an amendment to the existing Food and Drugs Act.

Pressure of other legislative business, as well as the objection of certain interests, prevented enactment of the bill. Pending its reintroduction, the Department will continue to urge the wisdom and necessity of its provisions.

Despite the shortcomings of the existing law, its enforcement wrought further improvement in our food and drug supply during the last year. Routine enforcement directed regulatory action against violations affecting the public health, violations involving filth or decomposition in foods, and violations resulting in economic fraud. In the last fiscal year the Food and Drug Administration reported more than 1,000 shipments of foods, drugs, and stock feeds to the Department's solicitor, as a basis for criminal prosecutions. It caused seizure actions to be directed against 1,226 consignments of foods, 435 consignments of drugs, and 24 consignments of stock feeds.

Sea-Foods Problem

A major problem is the protection of the consumer against filthy and decomposed food products. Because of their highly perishable nature, sea foods require special attention. Such products, both canned and fresh, create many occasions for seizures and prosecutions. Protection of the consumer requires the scrupulous attention of manufacturers to the character of the raw fish products, to rapid and sanitary handling, and to proper sterilization. The previously mentioned amendment to the Food and Drugs Act allows the Secretary of Agriculture, at the request of any packer of sea foods sold in interstate commerce, to inspect the product at the manufacturing plant. Manufacturers may appropriately label goods that have passed the inspection. They receive the service at cost.

Research in the Food and Drug Administration developed some new methods to reveal the presence of filth in dairy products. These methods led to the seizure last year of numerous consignments of low-grade butter of the type known as packing-stock butter. Among

the seizures were some consignments of alleged creamery butter. The resulting legal actions stimulated dairy processors to improve the methods of making and handling butter.

Another big problem is the control of poisonous spray residue. The Food and Drug Administration maintains an extensive surveillance of interstate shipments of fruit and vegetables by both truck and rail. Fruit and vegetable producers and dealers are beginning more and more to recognize the importance of spray-residue control. State authorities support the movement vigorously. In consequence the number of legal actions necessary in the last fiscal year declined. Only 58 seizures of fruits and vegetables for excessive spray residue had to be made in 1934 as compared with 241 in the fiscal year 1933.

Liquor Adulteration and Misbranding

Prohibition repeal created new problems for the Food and Drug Administration. Under prohibition the regulation of alcoholic liquors was the task of other Government agencies. When traffic in alcoholic beverages became legal, the Food and Drug Administration had to apply to it the terms of the Food and Drugs Act. It did not receive additional appropriations for this purpose. As may easily be imagined, it would be possible to divert to this one purpose the entire appropriation for enforcing the Food and Drugs Act. Since this would be manifestly inexpedient, the administration concentrated attention on the most serious types of liquor adulteration and misbranding.

In accordance with this policy the administration made a survey of whiskies labeled as medicinal. It caused actions to be instituted against brands not up to the requirements of the United States Pharmacopœia and not clearly labeled to show their deviation from that standard. Misbranding of beverage whisky amounting to definite misrepresentation prompts administrative action. However, the character of the liquor traffic obviously makes special legislation necessary. Many types of liquor adulteration and misbranding cannot be proved, or even detected, by chemical analysis.

Among the byproducts of prohibition repeal are candies containing alcohol in liquid centers. Such articles are vicious, particularly in view of their consumption by children. Confections containing alcoholic, spirituous, and vinous liquor have been held illegal under the Food and Drugs Act from the beginning. They do not become legal simply through the repeal of prohibition. Purveyors generally bootleg these preparations. It is difficult to track down and establish the interstate character of the shipments. Nevertheless, the administration seized 18 consignments and practically drove liquor candies out of interstate commerce.

RESEARCH

Research is the Department's biggest job; indeed, research is the foundation of everything it does. It could not help farmers to plan their production, to reduce their costs, to fight the diseases and pests that attack animals and plants, to produce better crops and live-

stock, and to market their products efficiently, without first studying how these things may be done.

Yet some persons believe there is a conflict between agricultural research and the need to adjust agricultural production. Agricultural science enables farmers to increase crop yields per acre, and to increase the output of meat and milk per unit of feed consumed. How, it is asked, can this be reconciled with the present necessity to restrict certain kinds of farm production?

The contradiction is unreal. When farm production exceeds the demand, it should be reduced not by discarding science, but by planting fewer acres or raising fewer animals. There is no advantage in allowing costs per unit of production to increase, as would be the result of giving science a holiday. By letting pests and diseases ravage their crops, and by harvesting inefficiently what remained, farmers could doubtless reduce their output, and raise the prices of farm commodities. But they would increase their unit costs of production out of all proportion to any conceivable gain in prices, and would produce goods of low quality.

It is therefore wrong to say that agricultural research should be curtailed when crop adjustments are in order. In fact, the need for research is greater then. The character of the work should perhaps be somewhat changed. The crisis through which American agriculture is passing gives a new direction to agricultural research and a new importance to certain kinds. Especially it emphasizes the worth of investigations having an immediate social application.

In shaping its research to meet the emergency, the Department has kept this principle firmly in mind. It has strengthened various studies promising wide social benefit, not only to farmers but to other economic groups. Examples are the economic investigations that furnish a basis for crop adjustments; the soil surveys and land classifications that influence subsistence homesteading, forestry, erosion control, and wildlife conservation; and diet studies that serve to guide public agencies in dispensing relief. We need technical progress in the distribution as well as in the production of wealth. Research devoted to that end joins economic science to production science without detracting at all from the value of the latter. It produces benefits that cannot easily be monopolized. Much research of this kind we have had, of course, for a long time. As we move away from ruthless competition toward efficient social cooperation, the scope and the need for it increase.

Social Value of Emergency Studies

Many studies made possible during the last year through emergency appropriations have outstanding social value. This Department gathered facts of tremendous national significance in a study of tax delinquency, which indicated the extent, the character, and the causes of the trouble. Results of this investigation may profoundly influence Federal and State policy in reallocating land to better uses. Emergency funds facilitated animal- and plant-disease control and work on problems created by the drought. Emergency funds also aided research as well as action against bovine tuberculosis, Bang's disease, tick fever, endemic typhus, white pine blister

rust, infestations of grasshoppers and chinch bugs, Dutch elm disease, and other scourges.

Special appropriations from Congress and grants from N. R. A., P. W. A., and C. W. A. financed statistical and economic studies, a farm-housing survey, and numerous miscellaneous activities. This Department furnished technical help to numerous Government agencies, in connection with unemployment relief, subsistence farming, work in the Tennessee Valley under T. V. A., code making and enforcement by the N. R. A., land planning by the National Resources Board, and tariff negotiations by the State Department. Investigations went forward looking to the solution of the spray-residue problem, the increased utilization of farm byproducts, the better adaptation of farm implements to farm needs, the breeding of drought-resistant agricultural plants, and the development of grasses suited to dry areas.

The Department cooperated extensively with the State experiment stations. The cooperative studies included surveys of soil resources in practically every representative agricultural area in the country; soil use and conservation; prevention of soil losses through erosion; establishment of superior types of farming; improvement of irrigation practices; more efficient and economical use of fertilizers; improvement of corn and other cereal crops, and of cotton grades and prices; breeding of potatoes resistant to disease; development and establishment of type varieties of vegetables; use of parasites to combat the oriental fruit moth; survey of plant diseases; increasing the efficiency of oil sprays for combating insect pests; improvement of conditions of livestock production, marketing, and meat utilization, and of the quality and palatability of meat; determining the relation of the conformation and anatomy of the dairy cow to productive ability; development of beefiness and milk production in dual-purpose cattle; use of proved sires in breeding for high milk and butterfat production; prevention and eradication of Bang's disease of cattle; establishment of a farm real estate tax index, and the use of land for grass and forage.

Federal Funds for Experiment Stations

The Secretary of Agriculture is charged by law with the responsibility of administering the Hatch, Adams, Purnell, and supplementary acts appropriating Federal funds for the support of the State agricultural experiment stations and of those maintained in Alaska, Hawaii, and Puerto Rico, and of coordinating the work of the Department with that of the stations. The funds so administered amounted to $4,439,130 during the year ended June 30, 1934—$90,000 to each State, $15,000 to Alaska, $62,270 to Hawaii, and $41,860 to Puerto Rico, out of a total of approximately $14,775,000 available to these stations from all sources. The funds were used for the prosecution of about 6,000 research projects, having as their primary object the betterment of farming and the rural home. About 800 of the projects were carried on in cooperation with the Department of Agriculture. The Office of Experiment Stations represents the Secretary of Agriculture in administering the Federal funds for the stations.

GENETICS

Probably no single factor in the research program in the Department is more important than what we have come to call the search for "superior germ plasm." Briefly, this consists of the discovery and development of superior seed stock through applications of the art of breeding and the principles of genetics. Such superior material then becomes available for use by producers of grain and livestock, as well as to the scientists and practical breeders for further improvement.

The isolation of strains having superior germ plasm is of tremendous value in efficient production. Superior germ plasm helps the farmer, not only to produce more per unit, but also to produce plants and animals of better quality and greater usefulness. In the plant field much has already been accomplished in this respect and although progress has been much slower and less spectacular in the animal field, many of the principles of inheritance are being applied in the development of new and superior strains.

A recent exhibition displayed about 150 superior new varieties of field crops. By the use of three chief breeding principles (introduction, selection, and hybridization) plant breeders have developed hundreds of new varieties which are high-yielding, disease- and insect-resistant, of high quality, and superior in many ways to the ordinary varieties.

New, superior varieties of wheat, such as Turkey, Marquis, Kanred, Ceres, Federation, Tenmarq, Ridit, and Oro; varieties of oats, such as Iogold, Albion (Iowa 103), and Markton; and varieties of barley, such as Hannchen, Trebi, and Gladron, to mention only a few, are now cultivated on more than 40 millions of acres of crop land each year. Apples of higher color and quality and strawberries adapted to canning and freezing are now available. Melons and peas resistant to wilt have been developed. Potatoes, such as the Katahdin, which is resistant to some of the baffling virus diseases, have been developed by Department plant breeders.

Progress With Livestock

In the case of the larger animals, livestock improvement involves such a long-time, expensive program that it is impractical to raise experimentally the large populations which are necessary for efficient progress. Nevertheless, the fundamental principles of inheritance are essentially the same in the animal as in the plant kingdom. It has been clearly established that genetic factors concerned with disease resistance, growth, body size, performance, and fecundity can be obtained in relatively homozygous conditions by application of the proper system of breeding and selection. Through introductions of the proper animal material and application of the correct breeding system, it is not only possible to concentrate important hereditary factors in strains of domestic livestock but this is already being accomplished.

For instance, one outstanding achievement in cattle breeding is the development of the Santa Gertrudis strain of cattle by practical cattle breeders in Texas. The Department has under way a similar program in which the Brahman and Aberdeen-Angus breeds of cattle

are being crossed for the purpose of combining certain desirable characteristics in homozygous condition. A similar experiment is being carried on simultaneously in which the imported Africander cattle are being crossed with the Aberdeen-Angus for a similar purpose.

By combining the Rambouillet and Lincoln breeds of sheep the Department has developed a strain, known as the "Columbia type" sheep, which is particularly adapted to the conditions found in the Northwest intermountain region. The Department is also experimenting with combinations of Southdown and Corriedale breeds of sheep for the purpose of producing more efficient and true-breeding strains of sheep for hothouse lamb production. Recently the Department imported 24 Landrace and 6 Yorkshire hogs from Denmark for use in the development of superior strains of hogs. An important part of the improvement program with cattle, sheep, and swine consists of record-of-performance tests, in which efficiency of feed utilization and quality of animal products are evaluated.

For the last 15 years the Department has followed a constructive breeding program in its dairy herds, using sires that possess a high degree of genetic purity for the factors that determine high milk production as indicated by the production performance of their daughters. By concentrating the superior germ plasm of such sires it is making progress toward the development of strains of cattle that will be pure in their inheritance and transmitting ability for a high level of milk production.

In poultry, Department workers have demonstrated that first-year egg production is determined largely by four heritable characters, sexual maturity, rate of laying, absence of broodiness, and persistence of production. By the proper selection of breeding stock, based on the progeny test, it is possible to develop superior laying strains that are comparatively homozygous. For the past decade poultry breeders in several States have been carrying on record-of-performance work on their own premises, with the object of identifying superior sires and dams and perpetuating superior strains of laying stock. The various State rules and regulations governing the poultry record-of-performance work are standardized through an unofficial organization known as the "United States Record-of-Performance Federation."

Interbureau Committee on Genetics

No conservation of natural resources can mean more to posterity than the production of strains of plants and animals relatively homozygous for efficient production of high quality. The Department of Agriculture is devoting itself to the long-time job of developing strains of this type. An interbureau committee is taking an inventory of the Department's genetic accomplishments, preparatory to further intensive research, and preparing to catalog, for the use of scientists and farmers generally, the superior strains of plant and animal breeding stock now available.

PROGRESS IN PLANT BREEDING

Research designed to increase the efficiency, stability, and quality of crop production has proceeded along the same general lines as in previous years, but on a scale reduced to meet the drastic cuts in

appropriations for this purpose. In spite of the reduced support, the plant scientists of the Department have continued to make notable contributions to a more efficient agriculture and thereby to the general welfare of all of the people, urban and rural.

When the results of plant improvement are measured in terms of acre yield, the larger average yield over a period of years frequently is due more to preventing ruinously low yields in occasional years than to raising the general level of yield. Thus the improvement tends to stabilize production and to permit more definite planning. Stem rust long has taken its toll from the Nation's wheat crop. The disease is not equal in severity in different years, but may be either negligible or devastating in its effect on susceptible varieties. The breeding of more resistant varieties by the Department in cooperation with the State experiment stations has reduced markedly, though not eliminated, the hazard of rust damage from wheat growing in the northern Great Plains, by providing Ceres, Thatcher, and other resistant sorts. Similar advances have been made in reducing the hazards due to winter-killing and smut injury.

Developments in oat breeding tend to stabilize the acre yields of that crop. Losses due to crown rust, stem rust, and the loose and covered smuts of oats have been severe in some seasons. Varieties already have been developed that are resistant to one or more of these diseases. More recently, strains have been obtained through hybridization and selection that are resistant to all four. It remains to determine by adequate field trials that these new strains have no serious unrecognized faults before they will be ready for distribution.

Plant improvement rarely is devoted to the sole purpose of increasing yield. Quality is equally important. Rust and smut decrease both the yield and the quality of wheat, and the gains in quality from the development of resistant sorts are frequently more important than the gains in yield alone. A few years ago practically all of the wheat from some of the shipping stations in the Pacific Northwest was very smutty, with consequent heavy dockage and a very low price. With the use of such smut-resistant varieties as Ridit, Albit, and Oro in these areas, most of the wheat now coming from the same stations is smut-free and without penalty.

Progress in developing better strains of corn by selection and crossing has been continued. Larger yield is not the only objective. The corn breeder strives to develop hybrids that stand up better in storms and produce a smaller proportion of unsound low-grading grain. During the past year it was discovered that strains of corn differ markedly with respect to the constitution of their starch. In some the percentage of amylose, the valuable constituent, was as high as 93 percent, and in others as low as 63 percent. This fact provides a basis for breeding varieties of much greater value to the starch industries than any now existing.

New Varieties of Fruits

Improved varieties or practices making for a better quality of product are even more important with fruit and vegetable crops than with field crops. Through breeding and selection the Department recently has produced a number of varieties of strawberries

having special merits as to quality and adaptation. The Dorsett and Fairfax, introduced in 1932, have unusually high dessert qualities. Others are the Blakemore, excellent as a preserving berry; the Bellmar, a berry of good quality that ships well; and the Southland, which is especially adapted to southern latitudes and has high merit for the home garden.

Losses due to alfalfa wilt are not alone those apparent in lower yields from year to year. Without this disease, the life of established fields would be materially longer. Growers would save on costs of reseeding and would avoid losses incident to the more frequent establishment of new fields. Foundation stocks of alfalfa that are vigorous and wilt resistant have been isolated by self-fertilization and selection, an important step toward the control of alfalfa wilt.

New fruit, vegetable, and field crops introduced by the Department constitute a valuable element of our present agriculture. The introduction of Korean lespedeza, introduced in 1921, has been extended to more than 5,000,000 acres with gratifying results. This legume has shown ability to withstand unfavorable conditions of various kinds. Even during the severe heat and drought in 1934 it maintained itself in Missouri and provided a little grazing when other crops failed.

The Department has obtained varieties of soybeans adapted to areas for which varieties previously were not available. Earlier maturing strains found among the Department's extensive recent introductions from abroad will permit utilizing this valuable crop farther north than heretofore. One of these, the Cayuga, may be counted on to mature in much of New York during any normal season. Its value as a home-grown source of protein for the extensive dairy industry in that State has been demonstrated.

The development of a variety resistant to some disease or insect pest may permit continued production of a particular crop in a locality that otherwise would have to make expensive shifts in farm practice or even be abandoned for agriculture. The success of the Department some years ago in rehabilitating sugarcane growing in Louisiana and the other Gulf States by the introduction of mosaic-resistant varieties is well known. This has maintained a production worth more than $20,000,000 annually, and conserved investments in mills and special equipment of more than $100,000,000.

Through further importations and breeding, other resistant varieties have been obtained possessing characteristics which adapt them to special conditions of soil, harvest, and the like. During the present year two new varieties of sugarcane having additional superior characteristics, C. P. 28/11 and C. P. 28/19, were released by the Department for general culture. The problem does not stop here however. During recent months a new form of the mosaic has been found in commercial fields of hitherto resistant varieties of cane. This calls for immediate steps looking to the finding and breeding of varieties resistant to the new menace as well as the old.

Influence of Light on Germination

Results that may have importance with lettuce breeding and production have just been obtained in studies of the influence of light on the germination of lettuce seed. Lettuce seed has a period of

dormancy following maturity, during which it will not germinate under ordinary conditions. Thus, seed produced in the regular lettuce-seed sections of northern California is harvested in August and cannot be used for early planting the same fall in the Imperial Valley. It has just been determined, however, that some kinds of lettuce seed, if soaked and exposed for a few minutes to daylight, will germinate immediately. The experiments have not gone far enough to predict whether this treatment will be useful in connection with commercial lettuce production. It is almost certain, however, to be of value to lettuce breeders in shortening the time between generations.

It is not always possible to breed a variety resistant to some disease, and other methods of control must be developed. Recent investigations in controlling tobacco mildew or the blue-mold disease have produced important results. In repeated experiments excellent control was obtained in 1934 by maintaining the tobacco beds at night temperatures of above 70° F. during periods favorable for disease activity. It appears to be unnecessary to begin heating to maintain temperatures until after the disease is evident, and relatively crude methods of heating can be used. This discovery will materially reduce the cost of obtaining stands of tobacco without significantly increasing final production.

The Department's investigations with the apple, peach, and orange have shown clearly that the removal from the tree of part of the crop early in the season results in much higher quality and size of those fruits left. The larger leaf area per fruit after the thinning makes available more carbohydrates and other elaborated foods per fruit, resulting in increased size and sugar content. Peaches and apples develop a brighter color over a greater proportion of their surfaces. Biennial bearing varieties of apples tend to produce annual crops if the fruit thinning is severe enough that sufficient foliage is available not only for developing the crop but for forming fruit buds in addition. All of these research results are being put into profitable practice.

DAIRY INVESTIGATIONS

As a result of the Department's progress in developing pure-line-production herds and in spreading genetic knowledge, farmers and breeders are becoming more and more interested in obtaining proved sires to head their dairy herds. At present the number of proved sires is very limited, but the breeding work has demonstrated that the sons of proved sires can be used with greater assurance that they will transmit higher production than the sons of untried bulls. As a part of the Department's breeding experiments, all young sons of proved sires are placed in neighboring farm herds to be proved. The 505 daughters of 52 young Holstein-Friesian bulls loaned to farmers near the Huntley, Mont., station have production records that exceed their dams' records by an average of 1,601 pounds of milk and 69 pounds of butterfat. The 145 daughters of 16 young Jersey bulls loaned from the Beltsville, Md., herd have records that exceed their dams' records by an average of 817 pounds of milk and 56 pounds of butterfat.

Criteria for Judging Cattle

Investigators in the Department are studying the relation between the outward conformation and the size of the internal organs and body parts, and the relation between both conformation and internal anatomy and producing capacity, for the purpose of providing a scientific basis for judging. They have found marked variations in the size of the internal organs of animals of similar conformation. For example, little relation exists between width of chest and size of heart and lungs, whereas the depth of chest is rather definitely correlated with the size of these organs; size of heart is rather closely correlated with body size, body circumferences, and body depths but less closely with height, widths, and lengths of body; lung weight is more highly correlated with lengths and depths of body than with other body measurements; and length of intestines is more closely correlated with body size, weight, and body depths than with other body measurements.

Milk secretion has been shown to be a continuous process except as it is interfered with by fright, pain, or internal pressure due to accumulation of milk in the udder. Moreover, it has been found that practically all of the milk obtained at a milking is in the udder when the milking process commenced rather than being secreted during the brief period of milking. The discovery led to experimental work which has shown that incomplete milking does not cause udder troubles nor tend to dry off cows quicker. This information may lead to the discontinuance of the laborious chore of stripping after machine milking.

Dairymen have long been urged to grow and feed more roughage, as a practical means of cutting feed cost of milk production. Recent investigations in the Department indicate that it is important to use good quality roughage, especially roughage with a high vitamin A activity, because of its beneficial effect on the general health and reproductive functions of dairy cows, and also on the nutritive value of their milk. Many premature births are caused by vitamin A deficiency, a condition that might be avoided by proper attention to the quality of the roughage fed. In seasons of exceptionally dry pastures this deficiency is likely to be aggravated, and may call for supplemental feeding with cod-liver oil, carrots, or other feeds rich in vitamin A.

Feeding experiments have shown that roughage is more nutritious and more palatable when cut in the earlier stages of maturity than when allowed to ripen before cutting, and the immature cuttings yield more protein per acre. Furthermore, at field stations cows have produced 75 percent as much butterfat on good roughage alone as they produced when fed heavily on grain with roughage. This information indicates that dairy farming, in many instances, would be more profitable if the farmer devoted all or most of his land to pasture and forage crops, and fed grain only when the prices of butterfat and the additional yield warranted the purchase of grain. Such a "back to grass" program would not only put the individual dairy farmer on a more permanently profitable basis, but would tend to retard production of a surplus of dairy products.

Miscellaneous Dairy Studies

Ice-cream studies in the last year have resulted in the development of a method by which the density of ice cream can be increased to any desired point by pressing to remove the air. The Department has perfected a method for merchandising natural cheddar cheese in small, attractive, consumer-size packages. Such packages should have wide-spread consumer appeal and should stimulate consumption. The process consists essentially in sealing the freshly made curd in valve-equipped cans, in which normal ripening takes place, and in which the cheese is also retailed to the consumer. Such a package may carry the name of the cheese maker direct to the consumer and should encourage manufacturers to make a high-grade product. Several companies have started packaging cheddar cheese in this way. Tests made of methods and materials for wrapping swiss cheese when it is cut for distribution to the retail trade indicate that it is possible to wrap the cheese so that it may be held for about 2 weeks without molding or noticeable loss of moisture, depending on the temperature at which the cheese is held. Dairy scientists this year developed a suitable package for merchandizing skim-milk powder in small consumer-size units. Making skim-milk solids available to the average household should increase the sales of this valuable product for use in home cookery.

ANIMAL INDUSTRY PROBLEMS

Early in 1934 Federal funds for the eradication of bovine tuberculosis became available through the Civil Works Administration. Several States assigned additional veterinarians to the work which was conducted under the joint supervision of Federal and State authorities. Local men assisted the veterinarians. During the few months that the C. W. A. project was in operation, approximately 1,000,000 cattle were tuberculin-tested in eight States. This completed the tuberculin-testing of cattle in many counties, and placed these counties in the modified-accredited area; that is, in the area in which the prevalence of the disease has been reduced to less than 0.5 percent. For this project the Civil Works Administration provided approximately $170,000.

Certain amounts later provided in the La Follette amendment to the Jones-Connally Cattle Act were allotted to the Bureau of Animal Industry to further the eradication of tuberculosis and of Bang's disease or infectious abortion.

Bang's disease exists in practically all localities where cattle are handled. It is a serious menace. In cooperation with the States, the Department proceeded with eradication work. The project provides for the payment of a Federal indemnity for cattle that react to the disease. Participation is voluntary on the part of the cattle owner, but if he participates he must agree not only to the testing of his cattle but also to the management of his herd to prevent reinfection.

The maximum Federal payment for grade cattle reacting to the Bang's disease test is $20. For purebred registered cattle it is $50. Up to the date of this report no State except Virginia has made an

indemnity payment. Virginia has made a limited appropriation for the purpose. The owner of reacting animals receives the net salvage in addition to the Federal payment, though he may not receive more than the appraised value of the animals. Approximately $17,000,000 has been tentatively allotted for the Bang's-disease project. The appropriation is available until the end of the calendar year 1935.

In connection with the enforcement of the Packers' and Stockyards' Act, a Federal statutory court upheld an order prescribing reasonable rates to be charged by the stockyard company in Omaha, Nebr., and the rates were put into effect. The estimated saving to farmers who use the Omaha livestock market is about $100,000 annually. The Secretary of Agriculture also issued orders prescribing charges at the stockyards in St. Joseph, Mo., and commission rates at the livestock market in Chicago, Ill. Federal courts temporarily restrained the enforcement of these orders. Pending a decision on these cases, the courts have required the stockyards and market agencies affected to set aside funds representing the difference between existing rates and the rates ordered. In the event that the cases are decided in favor of the Government, the impounded funds will be distributed to the shippers. The savings to farmers, if the orders are upheld, will be about $700,000 annually.

In livestock research record-of-performance studies with cattle and swine continued to demonstrate the wide variations which exist in the breeding efficiency and production efficiency of animals of similar ancestry. For example, there was a difference of nearly 5 months in the time it took beef steers of the same breed to reach finished weights of 900 pounds. Also calves that were heaviest at birth made the most rapid growth, required less feed per 100 pounds of gain up to weaning age, and reached final slaughter weights in the shortest time. However, no relationship was found between the weight of the calves at birth and the carcass grade they attained. In tests of dual-purpose bulls of similar breeding, individual sires differed widely in the transmission of the ability to produce beef efficiently. Similar wide variations in performance were found also with swine.

Meat Investigations

Meat investigations conducted by the Department in cooperation with State experiment stations and other organizations furnished important information on the factors which influence the quality and palatability of meat. The high value of good pasture for meat production was again demonstrated in a cooperative study with the Tennessee Agricultural Experiment Station. Lamb produced on good pasture and ewe's milk was equal in finish and palatability to lamb produced under similar conditions, but with the addition of grain to the ration. With fattened hogs, as the final feed-lot weight and finish increased between 145 and 225 pounds, the cooked meat showed a gradual though small improvement in tenderness, in the flavor of lean, and in the quality of the juice. When hogs were carried to heavier weights and greater finish there was a decline in these characteristics or no further improvement.

Veterinary Congress

Coming to the United States for the first time in the 71 years of its existence, the International Veterinary Congress held its twelfth convention in New York City August 13–18, 1934. John R. Mohler, Chief of the Bureau of Animal Industry, was elected president. An outcome of the convention was a movement toward increased international cooperation in research and in the dissemination of research results. The veterinary congress discussed the inspection of meat and milk, and manifested special interest in measures for the protection of consumers.

INSECT PESTS

Unusual weather over much of the country during the last year was favorable for certain insect pests. Many species which normally occur only in limited numbers became abundant and did material damage. In some sections, however, such as the northeastern part of the United States, certain common species were less abundant than usual. Buffalo gnats or black flies occurred in outbreak numbers in parts of the lower Mississippi Valley and caused material losses to livestock and poultry. The green bug, the corn flea beetle, the introduced sawfly which injures wheat and related grains, the pea aphid, and the San Jose scale occurred in outbreak numbers in various regions. The mild winter was favorable to the overwintering stage of the codling moth. The drought in the Middle and Far West favored the increase of grasshoppers and chinch bugs.

That excessive numbers of grasshoppers would occur over a large part of the north-central region was demonstrated by surveys in 1933, which indicated that certain species which migrate long distances would occur in large numbers unless natural causes intervened. To aid in protecting crops in infested areas, Congress appropriated $2,354,893 and authorized the Department to furnish materials for bait to States willing to organize and finance local campaigns. Many States organized campaigns which were very successful, though in drought-stricken areas crop damage from drought obscured the results.

Excessively large numbers of chinch bugs entered hibernation in the fall of 1933. The mild winter favored their overwintering. They emerged from hibernation and entered the small-grain fields much earlier than usual. This attack caused excessive losses in Iowa, Kansas, Nebraska, Illinois, Indiana, and Missouri. Unusual measures were necessary to protect young corn from the first generation of bugs, which migrated into the corn as the small grains dried up from drought or were harvested.

Congress appropriated $1,000,000 to purchase materials for the construction of barriers to prevent the bugs from migrating into young corn, and authorized the Department to cooperate with States that would undertake to receive, distribute, and bear the expense of handling and utilizing the materials. In limited sections the first-generation bugs had left the small grains and moved into corn before the cooperative effort to prevent damage by the first generation was under way. Over the area as a whole, however, the control campaign was markedly successful.

Mosquito-Control Campaigns

The Department cooperated in extensive campaigns to control pest and salt-marsh mosquitoes. In cooperation with the Civil Works Administration, it organized campaigns to control pest mosquitoes in 33 States. This work cost approximately $1,726,940 and furnished more than 2,805,000 man-hours of employment. The campaigns resulted in material benefit, and received general endorsement. Many communities undertook to maintain the ditches and other devices constructed as a part of the control operations. In many States and localities the work was continued or expanded when the Federal Civil Works projects were discontinued. Besides reducing the annoyance and dangers caused by mosquitoes, the campaigns demonstrated the practicability of mosquito-control operations during the winter. In certain sections along the Atlantic coast it was practical to couple mosquito control with reduction of the number of sand flies, which are a serious pest there.

With the aid of labor supplied through the Civilian Conservation Corps and other emergency agencies, the Department made progress in controlling outbreaks of bark beetles, which are a menace to important forests trees, particularly in the West. It conducted surveys to determine areas where control might be effectively undertaken and to furnish estimates of the cost. In California 22 C. C. C. camps did work to control the bark beetles between July 1, 1933, and April 1, 1934. The benefit should be great and lasting. As evidence of the value of such campaigns, it may be noted that during 1934 only 13 infested trees were located in the Crater Lake National Park. When control operations were undertaken there in 1932, it was necessary to treat more than 20,000 infested trees. Similar results have been obtained in many other sections. Even small projects, as, for example, one conducted in the Kootenai National Forest, have preserved valuable stands of western white pine.

A serious outbreak of the Dutch elm disease, which has caused wide-spread destruction of susceptible elms in western Europe during the past 16 years, was disclosed in parts of New Jersey, New York, and Connecticut, and in the vicinity of New York Harbor. The disease was first discovered in this area in June 1933. Last fall and winter scouts located some 1,500 diseased trees scattered over approximately 1,400 square miles. An unexpectedly rapid development of the disease took place at the beginning of the growing season in 1934. Infected trees began to show serious wilting by May 20, and within a month many diseased trees were dead or dying. By the end of June, 3,255 such trees had been found in the States, as follows: New Jersey, 2,012; New York, 1,235; and Connecticut, 8; and up to July 31, 6,500 diseased trees were known to be infected. The above conditions are attributed to the growth of overwintering infections which developed rapidly in the new current season's sapwood.

Bark Beetles Transfer Elm Disease

Work in Europe and preliminary studies in the United States indicated that certain bark beetles transfer the disease from tree to tree. Entomologists in the Department are studying the habits and distribution of these insects. There is no known cure for a diseased tree. The removal and burning of affected trees is the only practical

method of preventing the spread of the disease. This has been done as rapidly as possible with the State and Federal funds available. The unexpectedly large number of infected trees made it impossible, however, to do all the eradication necessary. Eradication of the disease appears to be practicable, but the scope of the work must be enlarged. Delay will increase the eventual cost. The disease was located at three other points—at Cleveland and Cincinnati, Ohio, in 1930, and at Baltimore, Md., in 1933. But at these points the European elm bark beetles apparently were not established. Eradication of the diseased trees appears to have been effective in these cases.

Spreading through Mexico, the Mexican fruit fly reached the northern border of that country some years ago and was first found in the lower Rio Grande Valley of Texas in 1927. It has persisted in that area in small numbers, despite efforts made by the State and Federal Governments and by the growers to eliminate it and to prevent reinfestation from Mexico. Suppression measures, consisting of the maintenance of a host-free period and the spraying of groves in which flies were found, have been continued.

Japanese Beetle at St. Louis, Mo.

The most important extension of the range of the Japanese beetle discovered in recent years is an outbreak in St. Louis, Mo. The insect was first picked up there by Boy Scouts in 1932. Several additional beetles were found in 1933, but information concerning the matter did not reach the Department until the spring of 1934. The infested area was something over 1 square mile. This is the first infestation of this size occurring west of Pennsylvania, although a few beetles have been taken in traps at intervening points, usually along railway lines. Officials of the Missouri State Department of Agriculture and of the city of St. Louis are anxious to suppress this infestation, and have made available their somewhat limited resources and equipment for eradication work.

CHEMISTRY AND SOIL INVESTIGATIONS

The protection of agricultural products and equipment against the destructive action of insects, micro-organisms, fire, and other agencies is one of the Department's major activities. Losses to American agriculture from these various causes are conservatively estimated to exceed $2,000,000,000 annually.

Work upon rotenone has led to a vast increase in the use of this new insecticide. During the past year 500,000 pounds of derris root was imported for manufacture into rotenone-bearing dusts, extracts, fly sprays, etc. The high toxicity of rotenone-containing products to such insects as the cabbage worm, and their harmlessness to man and animals, adapt them for use as insecticides upon vegetables. More than 300,000 pounds of derris dust was employed during the past season on cauliflower alone.

Domestic sources of rotenone, such as the common weed known as "Devil's shoestring" (*Cracca virginiana*), are being surveyed.

A harmless means has been discovered for preventing the objectionable darkening of sliced fruit and vegetables without the use of sulphur dioxide, the presence of which in excessive quantities has

caused the rejection by several foreign countries of certain American exported products. The commercial development of this new process is expected to be of great benefit to agriculture.

Farm fires in the United States in 1933 caused damage exceeding $100,000,000 and resulted in the loss of approximately 3,500 lives. American agriculture can ill afford this heavy "fire tax", which for the entire United States amounts to an average of about $16 per farm. This excessive drain is being alleviated through the Department's introduction of safety codes, by published instructions on the prevention and control of farm fires, and by an active educational campaign in cooperation with 4-H clubs and other organizations. By the adoption of the Department's recommendations, there has been a marked reduction in calamities of this description.

An additional hazard in the case of industries handling grain, flour, starch, sugar, cattle feeds, food products, insecticides, fertilizers, and other agricultural products is that of dust explosions. In the last 17 years (1917–33) there have been more than 360 dust explosions of this character in which 281 persons were killed, 624 injured, and an estimated $31,530,850 worth of property destroyed. The Department, cooperating with insurance companies and other protective agencies, has greatly reduced the number and violence of these accidents, with a considerable saving in life and property.

The Department developed a process for making a fine quality of white starch from cull and surplus sweetpotatoes. This led to an authorization by the Federal Emergency Relief Administration of funds not to exceed $150,000 for the construction and operation of a cooperative sweetpotato-starch plant at Laurel, Miss.

Beverages from Cull and Surplus Fruit

Among other recent important developments may be mentioned the Department's improvement of methods of manufacturing potable juices, wines, cordials, and other beverages from cull and surplus fruits, a chemical study of the soybean in order to determine what varieties are best suited for oil and cattle-food production, and the application of the ethylene treatment for improving the quality of walnut meats (a new development which in the past year has increased the value of this crop to producers by over $100,000).

For developing new methods for making useful products from straw, cornstalks, hulls, and other so-called "agricultural wastes", the Department is conducting investigations in cooperation with the Iowa State College. A new laboratory building which is being erected at Ames, Iowa, for this purpose with P. W. A. funds, will be equipped with the latest apparatus for producing illuminating gas, chemicals, and other byproducts from farm wastes by destructive distillation, fermentation, and other treatments. The utilization of these cellular wastes for paper, fiber board, and other promising commodities is being investigated. The problems are being studied from the viewpoint of the economic conditions in each agricultural section. Results of this work will help farmers to derive a profit from organic refuse which in many instances is now entirely wasted.

The Department recently discovered methods for fireproofing fabrics which will permit the employment of cotton cloth for awnings in many cities where this is not permitted by present fire-protective

regulations. Similarly its work on the development of improved vat dyes of greater fastness to light will extend the use of cotton goods. The Department's production of gluconic acid and other valuable organic chemicals by the mold fermentation of corn sugar is another illustration of how chemical research can widen the market for agricultural products.

Results of Fertilizer Studies

Fertilizer work done by the Department for the past 20 years has helped to develop a nitrogen industry adequate to meet the country's requirements for peace-time industry and for national defense, to foster a domestic potash industry which guarantees the United States against future shortage and foreign monopoly, to improve the production of phosphate and mixed fertilizer, and to save the American farmer more than $30,000,000 annually.

An idea of the extent to which the farmer has profited as a result of reduced costs of fertilizers may be gained from a comparison of the costs per unit of plant food in various materials shown in table 1.

TABLE 1.—*Average spot prices per unit of 20 pounds of plant food in various materials at producing points, in stated years*

Material	Plant food	1920	1925	1930	1933
Sodium nitrate	Nitrogen	$4.44	$3.28	$2.49	$1.53
Ammonium sulphate	do	4.08	2.65	1.79	1.12
Anhydrous ammonia	do		1.75	1.40	1.15
Cyanamid	do	3.40	2.20	1.65	1.13
Animal tankage	do	8.38	3.98	3.78	2.02
Fish scrap	do	8.02	5.33	4.95	2.88
Dried blood	do	8.97	4.53	4.27	2.63
Cottonseed meal	do	9.48	5.69	5.01	2.71
Run-of-pile superphosphate	Phosphoric acid	1.22	.57	.54	.43
Potassium chloride	Potash	2.41	.68	.69	.70

That the American potash industry has become so firmly established as to free this country from foreign control was demonstrated by its initiation this year of a series of price reductions which brought the cost of muriate of potash to the lowest price at which it had ever been quoted in this country, namely, 35.2 cents per unit of potash.

The utilization of synthetic ammonia in its application to the fabrication of new nitrogenous fertilizers has been studied with a view to the elaboration of substitutes for the high-priced organic ingredients and to promote the use of nitric acid in fertilizer manufacture.

The blast-furnace smelting of natural phosphate rock as developed by this Department yields the element, phosphorus, freed from its combinations, as a convenient material for distribution and fabrication into a series of fertilizer compounds. The Department's equipment and personnel applied to this important research has been transferred to the Tennessee Valley Authority to constitute a part of that agency's fertilizer-production program. Collateral researches involving smaller expenditures continue in the Department.

The application of this new technology to the vast phosphate deposits of the Rocky Mountain States appears to be the most feasible method of placing those deposits at the service of the farmers of the

Midwestern and Western States. Utilization of these deposits would furnish much employment.

The Department continues to seek the elimination of the less valuable, with increased concentration of the more valuable, constituents of prepared fertilizers. Results to date, with a 40-percent increase in plant-food content, represent a proportionate decrease in distribution and handling charges amounting to an annual saving of several million dollars.

The Soil Survey

During the past fiscal year the Soil Survey mapped approximately 24,000 square miles of rural lands in 26 States and Puerto Rico. This brought the total area covered to more than 1½ million square miles, or something over one-half of the nonmountainous land of the Nation. In addition the Soil Survey aided other Government agencies in dealing with problems of land use, reclamation, and farm credit. The maps of the Soil Survey furnish a basis for developing policies of land use. With the accompanying reports, these maps provide working handbooks which describe conditions of climate, vegetation, physiography, geology, and drainage, and indicate the possible uses and productivity of particular areas.

In recent years the Soil Survey Division has cooperated with the North Dakota Agricultural Experiment Station in surveying the western counties of North Dakota for a classification of rural lands for tax assessments. Other States, especially Washington, plan a similar land classification. Appraisers for the Federal land banks use the soil maps. In areas surveyed recently the land appraisers rely almost exclusively on the soil survey. Organizations responsible for the determination of land use, the zoning of rural lands, the appraisal of farm lands, the purchase of lands for farms or forests, and the location of reclamation projects depend on the Soil Survey maps and reports.

Soil Erosion

It is imperative to emphasize the serious problem of soil erosion. Inattention to the progressive devastation of great areas by the uncontrolled action of wind and water already has cost the Nation many billions. In terms of our national life and welfare, the loss cannot be expressed in dollars and cents. The Department has made progress in both the research and the extension phases of erosion control at its erosion control experiment stations. The remarkable effectiveness of vegetation in holding the soil in place has been measured in numerous ways under a wide variety of conditions. Associated studies have dealt with the comparative influence of different crops, the effects of cultivation, the value and action of organic matter in the soil, the make-up and arrangement of crop rotations, etc. The same cultivated crop may provoke remarkably different degrees of erosion in different rotations, depending on definite factors in the character and sequence of the other crops.

New and promising possibilities are developing through the combination of the vegetation factor with terracing, contour cultivation, and other mechanical types of control, especially under conditions of land use and slope where either alone may prove inadequate. Most

promise under a rather wide range of conditions appears to lie in such combinations of methods.

Tests at the erosion experiment farms continue to demonstrate that terracing is the most effective single means of controlling soil erosion on cultivated land. It is particularly effective on land devoted to such crops as corn and cotton. Supplementing the terraces with contour plowing and the use of soil-saving and soil-building crops gives the best results. The experience of the Civilian Conservation Corps in gully control showed that for lands suitable only for pasture or forest, masonry or concrete structures are too costly. For such lands, less permanent dams of brush and logs or rock are practical.

EXTENSION AND INFORMATION WORK

All phases of the Department's traditional job of diffusing useful information on subjects connected with agriculture took on new meaning and vitality during the year. Through extension activities, press and radio releases, and through official publications the Department forwarded the crop-adjustment programs, and kept farmers and others in touch with technical progress in agricultural economics, in plant and animal science, in disease and pest control, in home economics, and in many other subjects of practical importance. It dealt comprehensively with all phases of the drought problem, from the meteorological aspects to the economic and social effects immediate and prospective. It specially emphasized the importance of erosion control and soil building through the increased use of pasture and forage, a course which has the additional great advantage of harmonizing with the crop-adjustment programs. Research and technical progress do not conflict with the need to readjust production, as many farmers and others mistakenly suppose; and the Department took pains to make this clear through various informational channels.

With the passage of the Agricultural Adjustment Act, the Extension Service became the spearhead of the adjustment campaigns. State extension workers and county agricultural agents in most of the States devoted much of their time to the organization and training of county and community crop-adjustment committees, and to holding meetings of farmers to explain the need for production control and the provisions of the production-control contracts. They assisted farmers in executing contracts, supervised the measuring of fields to determine compliance, distributed checks for benefit and acreage-rental payments, and handled many other details involved in the contracts. Extension agents held nearly 75,000 meetings of farmers during the year in connection with production-control campaigns.

Extension workers everywhere assisted relief agencies, both in planning relief activities, and in suggesting to farm families means of increasing their incomes and keeping off relief rolls. Home-demonstration agents organized and directed home-gardening and food-preservation projects, supervised community-canning plants, and made suggestions regarding low-cost foods to maintain satisfactory dietary standards. Extension nutrition workers in a number of States served as advisers to State relief administrations on food problems.

The drought brought many new duties to extension workers. Local arrangements for the appraisal and purchase of several million

cattle and sheep in the drought area by the Agricultural Adjustment Administration were, for the most part, in the hands of extension agents. Extension directors generally served as State drought directors and county agricultural agents as county drought directors. State drought directors assigned purchase quotas of cattle and sheep to counties, and county agents, with the assistance of the county drought service committees, arranged for the listing of livestock for purchase. Extension agents advised farmers regarding the conservation of feed supplies, the planting and use of emergency forage crops, the planting of emergency gardens, and many other means of lessening the ravages of the drought.

Boys and Girls 4-H Clubs

Both agricultural and home demonstration agents found time to continue in large measure one of the most important of extension activities, the 4-H boys' and girls' clubs. Enrollment in 4-H clubs and completion of projects by club members in 1933 reached practically the 1932 figures, and preliminary estimates for 1934 indicate that there has been little falling off in club work.

With the additional personnel employed as emergency agricultural agents and in other capacities through allotments of funds by the Agricultural Adjustment Administration, and with assistance given by the relief administration in some States in the employment of home demonstration agents, the extension staff now consists of a larger force of trained workers than at any previous time. On June 30, 1934, the total was 6,549, of whom 3,344 were agricultural agents and assistant agents in counties, and 1,387 were county home demonstration agents and assistants.

FARM HOUSING

With funds provided by the Civil Works Administration, the Department conducted a farm-housing survey as part of the farm-recovery program. The inconvenience of farmhouses, the absence of comforts which are taken as a matter of course in the city, and the wide-spread lack of even simple facilities for safeguarding health are well known. Years of economic depression have intensified these conditions and lowered the standard of living among farm people. An improvement in rural housing would benefit the entire Nation. It would raise the rural living standard, furnish employment in many industries, and quicken trade in both town and country.

The survey covered farmhouses representative of conditions the country over. Its purpose was threefold: (1) To obtain definite facts and figures on rural-housing needs from the men and women occupants; (2) to work out plans and specifications for building new low-cost rural houses, and for making repairs and improvements on houses now standing; and (3) to suggest methods of financing that would aid in rural improvement and national economic recovery.

As an immediate relief measure the project gave employment to nearly 5,000 persons, among them about 4,500 women. The personnel included women trained in home economics, agricultural engineers and architects, and persons with statistical, clerical, and field

experience. Bureaus of the Department cooperated with State extension services in the survey.

The field staff visited more than 600,000 farm homes in 352 counties in 46 States and obtained information regarding water supply and sewage disposal, light and heat, refrigeration, laundry, and cooking facilities, and on new installations and construction and acceptable methods of financing. An engineer in each county obtained data on needed repairs, and worked up a schedule of unit costs after interviewing local dealers, contractors, and farmers.

The survey indicated that probably 50 percent of our rural homes are in good structural condition. They may be poorly arranged, and may lack modern conveniences, but at least the houses are reasonably sound. On the other hand, some 15 percent of the houses need new foundations; between 15 and 20 percent need new roofs; 10 to 15 percent need new floors; and about 10 percent need extensive repairs or replacement of exterior walls. Between the extremes of houses in good condition and those needing complete replacement of some part or all of the house is a large group needing extensive repairs of some kind, including refinishing inside and painting outside.

Prospects for Farm Building

The survey indicated that 250,000 farmers hope to build new houses within the next 3 years, and that a much larger number wish to remodel their houses and add modern conveniences when their incomes permit. To assist farm people in planning improvements the Bureaus of Agricultural Engineering and Home Economics cooperated with 20 of the State agricultural colleges and the Civil Works Administration in preparing designs for well-arranged low-cost farmhouses. Forty of these plans have been published in a farmers' bulletin entitled "Farmhouse Plans." Working drawings to be used by carpenters in building these houses were made available through the extension services of the State agricultural colleges.

Studies were made of kitchen arrangement, storage units, and farmhouse remodeling. Suggestions are being prepared for remodeling old houses and making repairs. Specifications were prepared for plumbing and heating equipment suitable for farm use. The survey stimulated a renewed interest in home improvement. There is an increasing demand for material on all phases of the subject. The survey showed that a large number of farm people want electric service. Accordingly, investigators studied present electric-service facilities, desirable extensions of transmission lines, and uses for electricity on farms. Other phases of the survey provided information on rural hospital and library facilities. In short, it furnished much basic information needed in planning for improved living conditions on farms.

Lack of Conveniences on the Farm

The survey revealed an extreme lack of home comforts and conveniences on the farm. Some of the causes were obvious. Rural communities find it difficult to cooperate in supplying utilities such as water supply and sewage disposal. Rural electrification is costly. Moreover, farm people frequently do things in laborious ways after

easier methods have been discovered. In far too many instances the farmhouse provides only meager facilities for sheltering and feeding the farm family. It contributes little toward making homelife pleasant. Heretofore farm savings have largely gone back into the farm to increase production. It would be sound economy to put an increased proportion into the home. Such a course, besides raising the farm standard of living, would harmonize with the need for controlling production.

WEATHER STUDIES

During the past year the Weather Bureau took steps to utilize the results of recent studies and investigations in forecasting. This action was prompted, in part, by recommendations contained in a report by a committee of the Science Advisory Board. The committee was created by Executive order on July 31, 1933, for the purpose of cooperating with the Federal Government in the handling of problems in which science is involved. A special committee on the Weather Bureau consisted of Robert A. Millikan, director, Normal Bridge Laboratory of Physics and chairman of the executive council, California Institute of Technology, Pasadena, Calif., chairman; Isaiah Bowman, chairman National Research Council, director, American Geographical Society, New York City; Karl T. Compton, president Massachusetts Institute of Technology, Cambridge, Mass.; and Charles D. Reed, senior meteorologist in charge, Weather Bureau section center, Des Moines, Iowa. The committee's report was published in December 1933, was approved in January 1934, and action to carry out its recommendations has been proceeding since that time.

The most important recommendation related to the development of forecasting on the basis of what is known as "air-mass analysis." Briefly stated, air-mass analysis consists of a detailed study of masses of air of decidedly different structure as to temperature, moisture, and wind that meet along an irregular line variously referred to as a "discontinuity line", "polar front", "wind shift", etc. These masses of air, cold and dry from polar regions, warm and humid from equatorial, do not readily mix but tend to preserve their individual identities, the warm, moist air being forced to rise above and flow over the denser cold air, with resulting condensation and precipitation and other attendant phenomena which give us most of the stormy weather characteristic of temperate latitudes.

The chief requisites for the application of air-mass analysis to forecasting are (1) personnel qualified by training and experience in this school of thought; (2) daily reports of temperature, humidity, and other conditions up to 3 or 4 miles above the earth's surface at a large number of places well distributed over the country; and (3) more frequent and more detailed reports of surface conditions, including observations at sea.

In carrying out the first objective a special nonassembled civil-service examination has been announced for the purpose of bringing into the Bureau several well-qualified men who have specialized in forecasting based on air-mass analysis. The introduction of this method will require probably from 3 to 5 years, during which period

the personnel of the Bureau, already experienced in forecasting, will be given additional training along the newer lines.

The second part of the program, namely, securing upper-air observations of temperature, humidity, etc., has been put into effect to the extent that this is possible at the present time. This has been accomplished through cooperation with the War and Navy Departments. In all, 20 airplane stations are now in operation, 7 each by those two Departments and 6 by the Weather Bureau. These are quite well distributed over the country. Daily flights are made to heights of about 17,000 feet and the data are at once transmitted by the teletype system of the Bureau of Air Commerce. The organization of this net work of upper-air stations constitutes the most important step in the development of the air-mass analysis program. The data will be of great value in theoretical studies as well as in the more practical work of forecasting.

Under existing conditions not much can be done in putting into effect the third objective, namely, securing more frequent and more detailed observations of surface conditions, both on the land and at sea. However, a definite program has been worked out for adoption as soon as practicable. It provides for 4 daily weather maps instead of 2 and for more precise information regarding cloud types, character of precipitation, pressure changes, and other elements. The data will be reported in accordance with a system of codes and units that has been adopted for international use, thus assuring comparable reports from all countries.

Problems of Forecasting

Generally speaking, there has been comparatively little progress in forecasting for many years. It is confidently believed that, through the greater employment of modern working tools such as radio and the airplane, which will give us essential data in the vertical as well as in the horizontal, we now stand on the threshold of an era of real progress, which will provide forecasts more accurate, more specific, and covering somewhat greater periods in advance than have been possible up to the present time.

With funds allotted for the purpose by the Civil Works Administration this Department studied the frequencies at which excessive rainfall for short periods has occurred in different parts of the country. Results of this study should have numerous important practical applications. They have a bearing on the planning of terracing systems, on farm-drainage systems carrying surface water, on the construction of culvert-waterway openings for small watersheds, and on the need for municipal storm-water sewers and other structures for carrying run-off water. Knowledge of the frequencies with which different rates of precipitation recur will enable engineers to determine the maximum rates against which run-off structures should give protection. The study assembled data relating to excessive precipitations at 208 Weather Bureau stations. The investigators derived formulas to represent the maximum rates of precipitation for periods up to 400 minutes. They prepared charts showing the frequency, the duration, and the season of various precipitations. It should now be possible to predict with reasonable accuracy the probable frequency of short-duration precipita-

tions of any given intensity in any part of the United States. Storms along the Gulf of Mexico and the Atlantic seaboard are of much greater intensity than storms inland east of the one hundredth meridian. West of that meridian storms are of less intensity and frequency than farther east.

ROAD CONSTRUCTION

To provide for emergency construction of public highways and related projects, the National Industrial Recovery Act authorized the President to make grants to the several State highway departments in an amount not less than $400,000,000 to be expended on sections of the Federal-aid highway system, extensions of the Federal-aid system into and through municipalities, and secondary or feeder roads to be agreed upon by the State highway departments and the Secretary of Agriculture. An additional amount not less than $50,000,000 was authorized for the construction of roads in the national forests and parks, in Indian reservations, and through public lands.

Under the latter authorization, $25,000,000 was allotted to this Department for the construction of roads in the national forests, and $5,000,000 was made available and apportioned among States having more than 5 percent of their area in public lands for construction of roads through such lands under the joint supervision of the Department and the several State highway departments. For the expenditure of these sums and the $400,000,000 allotted for construction on the Federal-aid system and secondary roads, the Department has been directly responsible. Under special agreements the Bureau of Public Roads has also supervised the design and construction of roads in the national parks and loan-and-grant projects approved by the Public Works Administration.

Increase of employment was the primary purpose of these allotments, and the results in that respect have been satisfactory. Measured in man-months, the employment afforded by road construction work, under the supervision of the Department, in the fiscal year 1934, was almost as great as the total for the 2 preceding years.

As shown by table 2, employment provided during the past year totaled 2,185,259 man-months, which may be compared with 908,271 man-months in the fiscal year 1932 and 1,352,626 in 1933. The 1934 employment varied from a minimum of 111,307 men in August 1933 to a maximum of 344,421 in June 1934, with an average monthly employment of 182,105 men.

TABLE 2.—*Comparison of employment during fiscal years 1932, 1933, and 1934 on all Federal and Federal-aid highway and forest road and trail construction, and on all Federal and State road work, including State maintenance operations, by months*

Month	Men employed on all Federal, Federal-aid highway, and forest road and trail construction			Total men employed on all Federal and State highway and forest road and trail construction and maintenance		
	1932	1933	1934	1932	1933	1934
	Man-months	*Man-months*	*Man-months*	*Man-months*	*Man-months*	*Man-months*
July	170, 644	83, 795	129, 205	391, 285	308, 125	332, 277
August	156, 874	92, 426	111, 307	395, 405	336, 483	329, 909
September	120, 289	126, 346	118, 555	360, 806	378, 558	341, 481
October	92, 039	128, 324	160, 190	333, 274	377, 464	390, 203
November	64, 693	134, 360	193, 613	291, 543	376, 094	427, 822
December	37, 293	101, 284	182, 004	246, 273	293, 478	369, 677
January	30, 583	78, 153	159, 304	230, 254	269, 098	321, 139
February	27, 637	80, 881	162, 332	219, 182	257, 922	311, 608
March	29, 017	98, 584	149, 474	212, 558	282, 093	301, 686
April	43, 728	126, 419	194, 554	247, 366	304, 045	352, 175
May	61, 114	144, 591	280, 300	261, 721	334, 898	474, 832
June	74, 360	157, 463	344, 421	283, 224	364, 792	553, 020
Total	908, 271	1, 352, 626	2, 185, 259	3, 472, 891	3, 883, 050	4, 505, 829

These figures represent continuous employment—not individuals employed. By reason of the limitation of hours per week the number of individuals benefited is greater than the above figures indicate, the monthly average being about 261,000 persons. The figures represent direct employment only. The manufacture and transportation of materials and equipment employed an additional large number of men, estimated at 1.4 times the direct employment, or, for the year, approximately 3,059,300 man-months, making the total estimated employment, direct and indirect, during the year approximately 5,245,000 man-months.

The table gives details of the direct continuous employment by months in the fiscal years 1932, 1933, and 1934, on all Federal and Federal-aid road work supervised by the Department in comparison with the corresponding employment afforded by all Federal and State road construction and maintenance work. It will be noted that the employment provided by the Federal road work increased from approximately one-fourth of the total State and Federal employment in 1932 to nearly one-half of the total in the fiscal year 1934.

Distribution of Road-Building Employment

To distribute the road-building employment as widely as practicable the rules and regulations, issued by the Department with the approval of the Special Board for Public Works, required that projects be located in at least 75 percent of all counties in each State. In the course of the year projects were actually initiated in 2,649 of the 3,074 counties of the United States, or 86 percent. In harmony with the requirements for other Public Works projects, the regulations also limited the working time of each individual to 30 hours per week, subject to exceptions consistent with the nature of the work; provided for the establishment of minimum wage rates by the several State highway departments, and stipulated certain

reasonable preferences to apply in the employment of labor secured through local employment agencies designated by the United States Employment Service. Provision was also made to give effect to the purpose of the act to use a maximum of human labor in lieu of machinery wherever practicable and consistent with sound economy and public advantage.

In addition to funds provided by the National Industrial Recovery Act there were available for road building at the beginning of the fiscal year unexpended balances of previous appropriations for Federal-aid and emergency road construction and for forest and public-lands highways, for which this Department is directly responsible, in the amount of $133,271,408. With the $424,000,000 made available by the National Industrial Recovery Act for construction of Federal-aid, national-forest, public-lands, and secondary highways, the total available for expenditure at the beginning of the year was $557,271,408.

Expenditures for Road Construction

Expenditures on the various classes of work for which the above sums were available amounted during the year to approximately $243,821,700, including $42,291,900 of Federal-aid funds, $55,669,100 of emergency construction funds appropriated by the act of July 21, 1932, $123,754,300 of public-works funds appropriated by section 204 of the National Industrial Recovery Act, $12,744,300 of several funds available for forest-highway construction, $7,064,600 for forest truck trails and trails, and $2,297,500 from funds available for the construction of roads through public lands. The expenditure reported does not include $35,275,000 disbursed to State highway departments in advance payment for work authorized by section 204 of the National Industrial Recovery Act, or expenditures made by States for work completed on public-works projects, probably exceeding $100,000,000, for which reimbursement had not been made by the Federal Government on June 30. Nor do the reported expenditures include any sums paid for work done on national-park highways under the engineering supervision of the Bureau of Public Roads or for loan-and-grant highway projects approved by the Public Works Administration and also placed under the supervision of the Bureau of Public Roads.

Construction work on projects of various classes, covering 23,150 miles of road, 12,080 miles of truck tracks, and 2,525 miles of trails, was completed during the fiscal year; including 14,780 miles improved with Federal-aid and emergency-construction funds, 6,986 miles built with funds appropriated by section 204 of the National Industrial Recovery Act, 1,099 miles of forest highways, 12,080 miles of truck trails, and 2,525 miles of trails, and 285 miles of public-lands highways. The total cost of the completed projects was $340,963,082, exclusive of the emergency conservation funds.

At the close of the year the current program involved improvement of an additional 18,298 miles in all classes of projects, including 2,324 miles to be paid for with regular Federal-aid, State, and emergency-construction funds, 15,392 miles financed with section 204 funds, 1,646 miles of forest-highway projects, and 579 miles of public-lands highways, 1,700 miles of truck trails, and 1,300 miles of

trails. The estimated cost of these projects is $510,384,274. The above does not include contemplated work of the C. C. C.

These mileages and costs of projects completed and in progress do not include national-park road projects or loan-and-grant projects approved by the Public Works Administration on which the construction work is supervised by the Bureau of Public Roads. Nor do they include work-relief projects in progress, involving nearly 7,800 miles of road on which labor is supplied and paid by the Federal Emergency Relief Administration and other costs paid with Public Works funds.

CHANGES IN DEPARTMENT'S ORGANIZATION

Some important changes were made during the year in the organization of the Department. The position of Under Secretary of Agriculture was created. The position of Director of Scientific Work was discontinued. An Office of Budget and Finance was created, with a director in charge. The Bureau of Entomology and the Plant Quarantine and Control Administration were merged into a Bureau of Entomology and Plant Quarantine. To this were transferred several units in the Bureau of Plant Industry which deal with the control and prevention of the spread of plant diseases. Charles L. Marlatt, Chief of the Bureau of Entomology, retired after 44 years of service; William A. Taylor, Chief of the Bureau of Plant Industry, after 42 years of service; Beverly T. Galloway, principal pathologist and formerly Chief of the Bureau of Plant Industry, after 46 years of service; and James A. Evans, associate chief, Office of Cooperative Extension Work, after 29 years of service.

HENRY A. WALLACE,
Secretary of Agriculture.

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WHAT'S NEW IN AGRICULTURE

ADJUSTMENT Program for Longer Future Requires Careful Land Planning

With the launching of the New Deal in 1933, a many-sided program was set in motion by the Administration. Some parts of the program dealt with the immediate emergency, while others looked to the longer future. The interrelationships between the various parts, however, have not always been clearly understood. Probably no other phase of the program has given rise to more confusion than that of land use.

Should farmers with fertile crop land continue to keep a portion of it out of production, or should the adjustment be made by the elimination of production on the submarginal land? Should we not concentrate on increasing foreign outlets for our agricultural products instead of adjusting production at home? What place should there be for subsistence homesteads on the land? These are some of the questions in the minds of thoughtful persons.

The major consideration in the problem of land use is the necessity of maintaining a balance between the productive capacity of our land and the market outlets, under conditions of farming which will conserve rather than deplete our land resources. In approaching this problem, the first thing to determine is how many acres we need to farm. That means we must take into consideration the amount of farm products we are selling and expect to sell abroad, the amount we import, and the amount which will be consumed domestically. To arrive at definite figures is not easy, because we are dealing with a number of variables. Take the matter of exports, for example. The Government, under the Reciprocal Tariff Act passed by Congress, is now attempting to revive a two-way foreign trade that will make it possible for us to sell a greater amount of farm products abroad. But since the progress that can be made in this direction depends in part on conditions in the rest of the world, no one can say just how much we can expand our foreign markets for farm products, nor how soon.

When we examine consumption at home, we find that in the predepression period from 1925 to 1929, the amount of land used to pro-

duce food for the population of the United States, computed in terms of the present population of 125 million people, was 287 million acres. In 1932–33, however, the depression had reduced the standard of living so that the number of acres used for domestic food consumption was only 281 million. In that period, nonfood crops consumed at home accounted for 30 million acres, and 44 million acres were used producing crops for export. This made a total of 354 million acres in use for food and nonfood crops.

Land Requirements for Different Diets

As we have explored the possibilities of keeping a maximum of farm land in use through increased consumer incomes and an improved standard of living, we have worked out estimates of the land required to supply the products called for by four scientifically balanced diets at different levels of nutritive content and cost. Now the number of acres needed to sustain our population on the basis of the first or cheapest diet is far less than on the basis of the fourth one. The subsistence level of the first diet requires only 180 million productive acres, while the second diet calls for 226 million, the third 280 million, and the fourth, or liberal diet, would take 335 million acres.

Our present level of domestic consumption calls for an acreage which approximates that required by the third diet, described as adequate, at moderate cost. The fact that the more liberal diet would require the utilization of some 55 million acres of producing farm land above our present requirements indicates to what extent greater domestic purchasing power and changed dietary habits could solve our agricultural-adjustment problem. However, the present outlook for achieving the level of the fourth diet is none too rosy. The problem of stepping up consumer purchasing power from the present level is itself a tremendous one.

Several Permanent Solutions Possible

The important thing to remember is that there are several possible solutions of a permanent nature, any or all of which may be applied to our problem of restoring a balance in agriculture. One is to shrink the size of the plant, a second is to increase our foreign outlets, and a third is to raise the domestic standard of living so that more acres will be used to feed our people at home. Still another is to continue the shift, already begun, from an intensive to an extensive type of farming.

The Administration is attacking the problem from all these directions at once. The Agricultural Adjustment Administration is collaborating with the Federal Emergency Relief Administration and the Department of Interior in the type of approach which involves the purchase of submarginal land and its removal from cultivation. The acquisition of this land naturally proceeds very slowly, but there is no reason why material progress cannot be made over a period of 5 or 10 years. There are worth-while social as well as practical reasons for this approach to the problem. To help farmers make a start on better soil is a justifiable objective. Also, compact resettlement around established communities should reduce the exorbitant costs to local and State governments for maintaining roads, schools, and other public services for scattered agricultural settlements. Finally, much of

the land not suited for agriculture has great value to society for recreational and other uses, including wildlife conservation.

Meanwhile, if foreign trade revives, through such measures as the Reciprocal Tariff Act, and if other measures and events increase domestic purchasing power, there is a good chance that expansion of acreage to supply increased demands may eventually meet the shrinkage in total plant brought about by the land-acquisition program. Progress in each of these three directions is not likely to be spectacular, and yet in time it may be sufficient to correct the maladjustment under which agriculture has been laboring in recent years.

Not all the land taken out of production will have to be acquired by the Federal Government outright. Undoubtedly much can be accomplished in cooperation with the States. Farm lands which return to State ownership as a result of nonpayment of taxes may be kept out of production. Many States, too, may find that the method of rural zoning, as practiced for example by Wisconsin, may prove useful in discouraging settlement on uneconomic or isolated lands, particularly when surrounded by forest and recreational areas. A third indirect method of influencing land use is the purchase of easements. This may be helpful as one means of making it worth while for farmers to check serious soil erosion, or of directing land settlement away from areas unsuitable for agriculture.

Relocating Farm Families

The program of land acquisition inevitably raises the question: What is to become of the thousands of farm families now living on the land to be acquired? The people affected fall into several main categories. (1) There are those who will be able to find work where they are, in the forest reserves, game preserves, parks, and so on which are set up by the Federal or State governments. (2) There are the families who will take care of themselves, either moving to town or to another piece of land. Often the people have a little nest egg saved up, which together with the modest sum paid them for their land, will enable them to make a fresh start somewhere else. (3) There are those who will need help or rehabilitation. (4) There are the people who would be willing to sell, provided that they can continue to live on their land the rest of their lives. In many cases it may be consistent with the objectives of this program to purchase the land subject to this privilege.

When we consider the problem of rehabilitating rural families, we find that there are other groups who desire some means of self-help on the land. There are stranded industrial families in the cities and in areas where the exhaustion of natural resources, such as coal or timber, has eliminated the prospect of employment. There are also the farm-bred people who would normally have gone to the cities, but who are now, because of reduced industrial activity, forced to remain in the country.

The establishment of "rural-industrial communities" has been proposed as a constructive remedy for the conditions just described. The Federal Emergency Relief Administration is cooperating with the States in setting up such communities, which are intended to provide home sites and tracts of land for stranded families, where products may be raised for home use. Likewise it is intended to make part-time occupations, such as the production of handicraft goods, available for the earning of supplementary income. Eventually it is hoped that a

decentralization of industry may bring permanent employment to such communities.

Crop Adjustments Well Along

The program of land use and the related one of community building necessarily look to the longer future. Progress made in these directions, along with general recovery and revival of foreign trade, will lessen the need for severely restrictive adjustment of production on good land. Already the emergency phase of adjustment is passing into the long-time phase. Instead of making drastic reduction in crop acreage, as was necessary in 1933, farmers now need merely so to shape their plans that cultivated acreage will not increase too much. We are witnessing a shift in the usage of fertile land from an intensive to an extensive type of farming, with increased acreages of pasture, forage, soil-improvement crops, game refuges, and wood lots. This change is desirable not only to gain the proper economic balance, but as a means of better livestock feeding and of conserving soil fertility. Such a shift is itself a significant move in the direction of better use of our land resources.

H. R. Tolley, *Agricultural Adjustment Administration.*

Agriculture Should Study Possible Alternatives to Processing-Tax System

The agricultural-adjustment program for the major export products has been made possible largely through funds derived from processing taxes. As a result of the excessive world supplies, the farm prices of wheat, corn, hogs, cotton, and tobacco were far below their normal relation to other prices at the time the Agricultural Adjustment Act was passed. The large American supply available for export prevented tariffs, where present, from maintaining the domestic price. The processing tax closed up part or all the gap between world market prices and the normal parity with commodities that farmers buy. Domestic consumers thus paid a normal price for their products, in part through the market price and the remaining part through tax payments. These tax payments covered disbursements of benefit payments to farmers who cooperated in production control, and thus made it possible to carry through the program of adjusting production.

Obviously, as supplies are better adjusted to demand, and as demand itself improves, the market price of the basic commodities will tend to rise toward the parity level. Under the Agricultural Adjustment Act the Secretary might find it necessary to adjust the taxes downward from time to time as prices rise toward parity. If prices exceed parity, and remain above parity for a sufficient length of time, the fact might justify the complete removal of the tax. Under these conditions, what device should be substituted if agricultural adjustment is to be continued? The act itself, in the statement of objective, says the purpose is: "To establish and maintain such balance between production and consumption of agricultural products" (as will give farmers parity prices). This indicates that it is intended not only to restore, but to maintain balanced market conditions.

The processing tax may tend to prevent prices of some commodities from reaching parity. The amount spent by the consumer for hogs, including the processing tax, appears to be determined by the supply

and demand conditions. If supply is adjusted to such a point that the consumer will just pay a parity price for it, the continuation of a heavy tax would divert part of that amount for benefit payments, and leave the market price at a lower level. Under such circumstances, a processing tax would penalize noncooperators who attempted to increase production, and would insure to cooperating farmers the full parity income. Continued corn and hog adjustment would thus be made possible.

In the case of some other products, such as wheat or cotton, the tax appears to be largely added to the amount paid by consumers. After a normal balance between supply and demand had been restored, the tax would therefore not tend to depress the price received among noncooperating farmers, but would tend to raise costs to consumers above parity levels which would be contrary to the declared purpose of the act.

Various Alternatives Mentioned

The problem must be faced of developing methods of continuing production adjustment even after processing taxes on some products have to be eliminated in whole or in part. A number of possible alternatives have been suggested. Seven have been enumerated by the Secretary of Agriculture. The first two involve continuing to secure farmers' cooperation in production adjustment by making benefit payments to them, but raising the necessary money either (1) by means of a general sales tax or (2) by means of higher income taxes. Another plan, (3) is compulsory production control, through the taxation of farmers who produce in excess of their allotted quotas, along the general lines of the Bankhead Cotton Act and the Kerr-Smith Tobacco Act. Other proposals are: (4) Use a combination of stabilization purchases and loans to farmers on commodities in years of large crops and low prices. (5) Drop production control, but limit the quantity marketed for domestic use at higher prices, while permitting unlimited marketing for export at the world market price. (6) Eliminate production control by restoring foreign buying power by loans abroad of approximately half a billion dollars a year. (7) Eliminate production control and restore foreign buying power by reducing tariffs sufficiently to create a net excess of imports of at least one-half billion dollars a year.

Difficulties in General Taxation

The first two methods involve general taxation for agricultural adjustment. It seems doubtful whether the general public would be willing to continue permanently a system of benefit payments to farmers for adjusting production in their own interests at the expense of the general taxpayer, even though that adjustment contributed to general economic stability. Several of the other proposals have even more obvious difficulties. The fifth plan, the two-price sytem with marketing control, besides involving serious administrative difficulties, would encourage the expansion of production, and force exports into world markets not prepared to take them.

The sixth proposal, to lend foreign purchasers each year the money to take continued heavy imports, though it was the method followed for years prior to 1929, is not sound. It could be only a temporary palliative, and would mean giving away most of the exports.

These eliminations brings us back to plans 3, 4, and 7. Plan 4 is somewhat along the line of the "ever-normal granary." Without accompanying control of production, however, purchases of supplies in large crop years cannot correct the surplus problem, as the Farm Board learned. Storage programs are desirable along with production adjustment, but they do not provide a satisfactory substitute. The Secretary's annual report, pages 1 to 109 of this volume, and the chapter on Smoothing Out the Cycles, in the book, New Frontiers, by Secretary Wallace, discuss the economics of the "ever-normal granary."

The Compulsory Control of Production

This leaves compulsory control of production as under the Bankhead Act, or adequate expansion of foreign buying power, as the two remaining possibilities. To a certain extent both plans might have to be followed in the future. We are now experimenting, through the trade-agreement program, to see how far our imports can be increased through concessions to other countries. If we continue along this line long enough, it may expand exports sufficiently to ease the problem of surplus acreage.

Compulsory control is not an attractive method for continuously adjusting production. Farmers may become restive under direct control as the economic conditions which were responsible for it gradually fade from memory. Some alternative voluntary method might grow out of the present county control associations. It must be remembered, though, that similar attempts at voluntary production control in the past have always broken down, owing to the tendency of outsiders to increase production and get an undue share of the benefits while making none of the sacrifices. However, the overwhelming vote given by southern farmers for a continuation of the Bankhead plan suggests that farmers as a whole may continue willing to put up with the difficulties of compulsory controls, for the assurance they give of continued balanced production.

Role of Government Land Buying

Another way in which adjustment might be continued is through the direct acquisition of land, or through arrangements for control of its use between the Federal Government and the individual farmers. The program for withdrawing submarginal land, in which more than 5 million acres may be purchased by Federal agencies during the current year, is one step in this direction. It would be exceedingly difficult, however, to take care of the whole surplus problem through the purchase of submarginal land alone. Such a small proportion of the poorer farms is devoted to commercial crops, and farmers on such land produce so little above their own subsistence requirements, that it might be necessary to purchase 100 to 150 million acres in order to retire 30 to 40 million acres from the major commercial crops. Moreover, the withdrawal of land from farming involves a serious problem in finding other occupations for the men who now farm the land. In the small amount of submarginal land purchased so far, the problem of the transfer and rehabilitation of the population has been more difficult than the problem of buying the land. On the tremendous scale suggested above, this would involve almost insuperable difficulties for any short-time program. Withdrawal of submarginal

land from production and rehabilitation of the people now on that land in more productive work, where they can maintain a higher standard of living, is very important from the standpoint of the common welfare, but it can make only a small contribution to the whole program of maintaining a proper balance between farm production and the demand.

Direct Control of Land

Another possible way in which agricultural adjustment might be continued would be through direct control of land. One possible avenue would involve modification of our whole system of land laws, so as to establish the right of public agencies to restrict or limit in the common interest the use which an individual makes of his land. This right has already been recognized in the city zoning ordinances which restrict the size and type of buildings to be erected on various plots. Through State legislation zoning restrictions for agricultural land might restrict the proportion put in cultivated crops, or the utilization of land for various types of crops. This, however, could be only a slow development and would represent a very material change in our present ideas of what farm-land ownership means.

One other possibility lies in the expansion of domestic consuming power to use the full productive power of American farmers. We do not now have enough farm products to give every person in this country the liberal diet consumed by those with comfortable incomes. At the same time three-fourths of the families in this country do not have incomes high enough to enable them to pay for the time and energy necessary to produce, manufacture, and distribute such a diet for all our people. It would take many years to increase sufficiently the incomes of those who previously have not had a satisfactory standard of living. Increased domestic buying power would offer the possibility of ultimate demand for much more agricultural products than it has ever taken in the past, and farmers, given that expanded domestic purchasing power, could expand their production to take care of that more adequate consumption. But for many years it will be necessary to hold farm production in balance with the current rather than with the ideal levels of consumption. Farmers may look hopefully forward, however, to a time when demand can utilize the full productive power of American agriculture.

Payment For Permanent Control

Another possibility would involve the purchase of control over land by the State or Federal Government on a permanent or semi-permanent basis, instead of on the 1-year basis provided by present benefit contracts. Instead of paying farmers a given sum of money to adjust their production in any 1 year, they could be paid for permanent control over part of their acreage. This might be done by leaving the land as the property of the individual farmers, but with the Federal Government authorized to restrict its use to forest pasture, hay, or other products as seemed wise in any particular period, the provision being made that only the owner of the farm should have the right so to use the land.

As compared with withdrawal of submarginal land, this would involve holding out of production over long periods part of the land on each farm. As a permanent program, it would be rather unde-

sirable to reduce the size of each of the present operating farms, instead of concentrating in a large area all the land withheld from production. As an intermediate program pending full restoration of domestic and foreign demand, however, and holding the land in reserve for eventual restoration of agricultural production, this program might offer advantages.

Impractical to Drop Adjustment Efforts

One possible course would be not to attempt to continue the adjustment of production after farm prices reach parity and to permit the production and acreage of farm products again to be controlled solely by the farmers' response to prices. The evidence of previous years indicates that if this were done, farmers would soon lose much that they have won under the A. A. A. There would probably be a restoration of the cycles of over and under production in hogs, beef cattle, cotton, potatoes, etc. Farmers would face also the danger of excessive production as a whole, with a generally lower level of farm prices. The Agricultural Adjustment Act recognized these possibilities and directed that effort be made to maintain as well as to establish a good balance between production and consumption. The alternative of abandoning efforts at control, therefore, seems one which may be definitely ruled out, both from the point of view of the economic welfare of the farmers and the country as a whole.

No matter what continuing program is used, it will have to provide one element which the A. A. A. programs so far have largely failed to provide. That is greater flexibility in the operations of individual farms. As an emergency attack, it has been necessary to make the adjustment of production upward or downward in blanket form, usually by the same percentage for all farms. Such a rigid program obviously could not prove satisfactory over a long period. Young men acquire farms; young farmers develop into mature farmers capable of handling larger units; mature farmers become older and then do not wish to undertake such extensive operations; older farmers retire and work their farms on a very moderate basis or gradually quit farming. Changes in the organization of the farm and the area in crops will inevitably come with these changes in age. The availability of help from the sons as the family grows up also will influence the size of the farm and the intensity with which it is operated.

Geographic Shifts in Agriculture

Besides these changes in the individual family situation, and many others which it is needless to indicate at length here, there are broad geographic shifts in agriculture with the passing of the years. Cities grow and require an increased production of milk, fresh fruits, and vegetables, etc. New methods of transportation are developed which result in shifts in areas where it is profitable to grow certain crops. New markets develop and demand new products. The price relations change between value of product and cost of transportation, shifting in or out the points where it is best to raise livestock or sell these crops. New varieties of crops or improved strains of livestock are developing, which may greatly change the possibilities of economic production. These and many other changes will need to continue. The adjustment of agricultural production under the A. A. A. has left

very little leeway for these economic and social changes. If the program is to be continued, it is essential that it operate so as not to "freeze" agriculture in its present form but instead to leave it sufficient flexibility to change and shift with changing individual needs and economic conditions. At the present time little can be said about the solution of this problem. It remains a problem to which increasing attention must be given if the adjustment of agricultural production is not eventually to prove a cramping rather than a helpful force in American agriculture.

Early Consideration of the Problem Necessary

It may be several years yet before American farmers have to turn from the emergency processing tax support of the adjustment program to another program of production adjustment. The possibilities suggested above and other mechanisms which may be developed will all have to be canvassed carefully, if farmers are to continue to have balanced production.

The adjustment program has been under way for a year and a half. The processing-tax-and-benefit-payment plan, which has served for the emergency reduction of production, seems unlikely to be adequate permanently. At the present time no definite answer can be made as to what modification will prove the best alternative. Control of land use, partly through submarginal-land withdrawal, and possibly partly through permanent control of portions of existing farms or through zoning regulations, may offer a partial solution. Compulsory control of individual operations may be found satisfactory for permanent application in certain areas or for certain products. Expanding foreign and domestic markets may make continued adjustment less difficult but not less necessary. New methods not yet foreseen may need to be evolved.

The problem is one which must be studied carefully by all thoughtful farmers and all other persons interested in continuation of a prosperous agriculture and a well-balanced functioning economy.

MORDECAI EZEKIEL, *Economic Adviser to the Secretary.*

ALFALFA Wilt Control by Breeding Making Remarkable Progress

One of the serious problems in alfalfa production is that of bacterial wilt. This disease threatens the crop especially in the Central and Western States, where alfalfa growing is most concentrated.

The causal organism has been isolated, but various cultural methods have not been successful in controlling the disease. It has been found, however, that some plants, especially those of Turkistan origin, are more or less resistant to bacterial wilt, and this fact forms the basis of the present breeding program designed to produce an alfalfa at once highly resistant to the disease and to cold and combining the desirable characters of yield and other qualities now found in certain varieties highly susceptible to bacterial wilt.

This work, carried on by the Bureau of Plant Industry in cooperation with State experiment stations, including those of California, Kansas, Nebraska, and Wisconsin, has been in progress about 6 years, and tangible results are now appearing. Plants of alfalfa have been

selected from outstanding old fields and from many introductions from Turkistan, Persia, Spain, Africa, and other foreign countries, collected by representatives of the United States Department of Agriculture. Many of these strains have been self-fertilized (the same plant being both male and female parent serves to intensify and purify the resistance to wilt) for five generations, each generation being subjected to controlled cold-resistance and wilt-resistance tests, with the result that some of the selections now available have almost twice as much resistance to bacterial wilt as the most resistant variety available before the breeding program was begun. These selections are being used for crossing with desirable varieties such as Grimm and Cossack, and the results on the whole so far suggest the definite probability that within the not-far-distant future varieties of alfalfa that combine disease resistance with other necessary and desirable qualities will be developed and made available for distribution.

FIGURE 1.—Test plots of alfalfa varieties at the Nebraska Agricultural Experiment Station: *A* and *E*, Nebraska Common; *B*, Spanish; *C*, Turkistan; *D*, Italian. The superior cold and wilt resistance of the Turkistan strain has enabled it to maintain a stand much longer than the others. Plots planted in 1922, photographed in 1932.

An idea of the economic importance of a wilt-resistant alfalfa can be had from the fact that where the disease is severe Grimm, Cossack, and Kansas Common alfalfa seldom retain a stand more than 3 or 4 years. On the other hand, the most resistant varieties obtainable at the present time, including Hardistan, Kaw, Turkistan, and to a lesser extent Ladak, under similar conditions maintain stands at least 6 or 7 years (fig. 1). In Kansas and Nebraska there are approximately 2,000,000 acres of alfalfa. If alfalfa maintained a stand 2 years longer than the present estimated average life of 5 years, 115,000 acres less alfalfa would have to be replanted annually to maintain the total acreage. To replant these 115,000 acres costs at least $460,000. This annual cost to Nebraska and Kansas farmers would be avoided if a desirable alfalfa were grown which would last the conservative period of 2 years longer than the domestic alfalfas now available.

H. M. TYSDAL, *Bureau of Plant Industry.*

ALLOTMENTS Under A. A. A. Programs Obtained from Census and Other Sources To carry out the purposes of the Agricultural Adjustment Act successfully and with fairness to all sections and individuals, it was necessary first to determine the acreage and production of the different crops by States and counties as a basis for the allotment of permissible acreage and of cash benefits. The responsibility for determination of these base-year figures on acreage and production and of the allotments for States and counties was placed upon the Division of Crop and Livestock Estimates of the Bureau of Agricultural Economics.

As groundwork for determining base-year acreages and production, the Bureau had available certain factual data, consisting of the United States census enumeration of 1930, by States and counties, and of similar annual data collected by local assessing officers for a number of important agricultural States. Supplementing these data were cotton-ginning records, by counties, collected by the United States Bureau of the Census; records of receipts of rough rice by mills; of receipts of various grains by mills and elevators; of shipments of grain and vegetables out of important producing areas; of special enumerations and surveys for limited areas; of acreage and production for many irrigation units; and of the Bureau's own estimates for past years by States, and for some States by counties.

The census figures were the main reliance for basic figures for the year 1929. As a check upon the relation of townships or other subdivisions within the county to each other, a special tabulation was made of the census records of acreage and production in these minor subdivisions for 1929. The assessors' enumerations where reasonably complete, were of next importance in determining absolute acreage and production from year to year and relationship as between counties.

As a means of checking the annual enumerations by assessors, there were available for comparison the enumerations by the Federal enumerators with those by the assessors for 1929, and the assessors' enumerations for successive years with their enumeration for 1929. The first comparison showed the approximate extent of understatement by the assessors in the census year and the latter indicated whether the successive yearly enumerations by assessors were reasonably uniform as to completeness.

Two Main Lines of Approach

Two main lines of approach were available toward establishing county estimates in the years selected by the Agricultural Adjustment Administration as base years by which to measure relative acreage and production. The first was to take the record of acreage and production by States and break it down, by districts and then by counties, on the basis of the census record of relative acreage and production. The second was to build up from available records the indicated acreage, yield, and production by counties and districts, subsequently modifying the estimates to conform to established State totals. Both of these methods were utilized to a greater or less extent as conditions and records in the various States permitted and the results were checked against one another and by all data available from other sources. In the aggregate, a great deal of factual information was

available bearing upon the problem of acreage and production by counties.

Two major objectives were held in mind in establishing estimates of base-year acreage and production and in figuring allotments: (1) To make certain that the success of the entire program of acreage adjustment was not imperiled by giving to the farmers of any section immediate or ultimate benefits to which they were not justly entitled and (2) to be assured that each section and each producer received as nearly as possible the allotment to which the section and the producer were entitled by reason of actual plantings and yields during the base-year period.

Where droughts, floods, and other unusual situations had affected the record to the extent that it tended to deprive communities of a fair participation in the benefits of the program, the Agricultural Adjustment Administration authorities, in their discretion, formulated rules of allowances or of alternative procedures with a view to equalizing the benefits of the plan to all communities.

In making up the record of base-year performance and establishing allotments, due consideration was given to all factual data, both those assembled by the Bureau and those presented from any other source. Appeals by States and counties for larger allotments were often made on the basis of locally assembled data. Examination of such material in some instances disclosed the need for changes in the preliminary estimates and allotments but much oftener the data presented were found to be unreliable. The assessors' data were very good in some States but poor in others and entirely lacking for a majority of the States outside those of the north-central geographic division. They were not uniformly good in all counties even where available. Every effort was made to allow for the variation in completeness of these data in the different counties.

SAMUEL A. JONES, *Bureau of Agricultural Economics.*

ANTHRAX Control Has Been Aided by Results of Recent Experiments

In anthrax-infected districts immunization of susceptible animals plays an important role in control. At present there are several immunizing agents with which animals can be made resistant to the disease. Each has a particular field of usefulness and also definite limitations.

Much new information on the relative values and limitations of six of the available anthrax-immunizing agents was obtained by the Bureau of Animal Industry through recent experimental tests on sheep. The animals used for study had had no previous contact with anthrax and carefully controlled conditions permitted the results to be evaluated on a comparative basis.

The products subjected to comparative tests were antianthrax serum, antianthrax serum and anthrax-spore vaccine in combination, anthrax-spore vaccine single injection, anthrax-spore vaccine intradermic, anthrax-spore vaccine in saponin solution, and anthrax bacterin (washed killed culture). In the tests each of these products produced definite protection against a subsequent exposure to virulent anthrax. Some variation was found, however, in the rapidity with which full immunity was produced by the different products, as well as the length of time that the respective immunities lasted.

In these tests the earliest complete protection was obtained with two of the products, namely, antianthrax serum alone and anthrax-spore vaccine intradermic, this being at 4 days after vaccination. The longest duration of complete protection was produced by anthrax-spore vaccine single injection and anthrax-spore vaccine intradermic, complete immunity having endured for a period of a year. The shortest duration of immunity was that produced by antianthrax serum alone. Definite evidence of waning of immunity was noted with this product at approximately 2 weeks after vaccination.

The results of these tests furnish sound experimental evidence indicating the particular field of usefulness of each of the products tested and add to the knowledge of the limitations to which each product is subject. This knowledge emphasizes the fact that immunization against anthrax is not merely a simple mechanical operation but a highly technical procedure that should be undertaken only by experts who are thoroughly qualified in this field. Veterinarians by reason of their special training are best fitted for controlling the disease. Additional information on these comparative tests may be obtained on application to the Bureau of Animal Industry.

W. S. Gochenour, *Bureau of Animal Industry.*

Artificial Drying Provides Means of Preserving Feeding Value of Immature Grasses

The possibilities of growing large amounts of forage for feeding purposes, and utilizing it when in its immature stages, have been emphasized by the advent of the commercial forage-drying machine. The purpose of preserving forage in a relatively immature condition is to obtain a roughage feed of high protein and nutrient content. The dry matter of young rapidly growing forage is high in protein, minerals, and vitamins, and low in fiber content. As the stage of maturity advances, the nutritive value of the forage decreases. This results principally from a change in the chemical composition and from a reduction in the digestibility of the nutrients.

If a satisfactory method of preservation is developed, a much larger percentage of the dairy ration can be supplied in the form of home-grown feeds. If, for instance, pasture grass can be dried artificially at a stage of maturity at which it still contains a high percentage of protein, the grass by itself, or in combination with hay and silage, will make a complete ration for dairy cows in the winter, just as pasture makes a complete ration in the summer. It would be necessary, of course, when putting up forage in this way to cut it several times during the season. Drying by artificial means could be accomplished at a time when the grass is ready to be cut regardless of weather conditions.

Artificial Drying Reduces Waste

Artificial drying of forages has certain advantages over the conventional way of making hay. It reduces waste through leaching and loss of leaves, and can be done regardless of weather conditions. The success and future development of this method of preserving forage crops depend upon (1) the cost of drying and (2) the effect of drying upon the feeding value of the dried product. Pasture is well adapted to frequent cropping, because of its perennial nature and its quickness

in recovery. It is also one of our highest yielding crops. During the last 4 years the Bureau of Dairy Industry, in cooperation with the Western Washington Experiment Station and the Washington Agricultural Experiment Station, has carefully studied the nutritive properties of artificially dried pasture herbage and the effect of the drying process on its feeding qualities. The pasture contained a mixture of grasses and clovers and was cut when 2 or 3 weeks of age and dried in an experimental artificial drying machine.

Immature Grass Highly Nutritious

The high protein content of pasture herbage when cut every 2 or 3 weeks, averaging in many cases as much as 24 percent, is maintained throughout the growing season. Moreover, this immature herbage maintains a relatively constant low content of fiber throughout the season. A minor significant item in its composition, as compared with that of drier and more mature forage, is its high calcium and phosphorus content. These elements tend apparently to be more concentrated in herbage when it is growing rapidly, particularly if well distributed rains occur during the growing season.

When artificially dried pasture grass exclusively was fed to dairy heifers, it proved palatable and highly nutritious. Two-year-old heifers consumed approximately 15 pounds of the dried material per day. This was sufficient for maintenance and some gain in live weight. The digestibility of the various nutrients was not affected by the drying process. The herbage contained a digestible crude-protein content of 18 percent and a total digestible nutrient content of 65 percent. In these respects it compared favorably with many high-protein concentrate feeds.

Using grass 3 weeks old, the investigators studied the effect of the temperature of artificial drying on the digestibility and availability of the feed nutrients. Pasture herbage was dried in the machine at exhaust-gas temperatures of 250°, 300°, 350°, and 400° F. When compared with rations of green and sun-cured grass, the grass artificially dried at different temperatures did not change in chemical composition, except that drying at 400° produced a significant increase in the crude-fiber content. This indicated that portions of the more leafy materials were burned. Furthermore, the herbage that was dried at 400° had a much lower coefficient of digestibility for protein and to a lesser extent for dry matter, crude fiber, and nitrogen-free extract, than herbage dried at lower temperatures. Apparently the intense heat reduced the availability of the calcium. Nutrients in grass dried at lower temperatures were as efficiently digested and utilized as those in green and sun-cured herbage. As the temperature of drying was increased, the percentage of natural color in the herbage was adversely affected. It was evident that raising the temperature in the artificial drier to extremely high levels, to get increased efficiency in the utilization of fuel, lowers the nutritive value of the feed.

Vitamin D in Green and Dried Grasses

Further experiments determined the vitamin D content of artificially dehydrated pasture grass, as compared with that of similar grass fed in a green and sun-cured condition. When rats received

green, artificially dried, or sun-cured herbage, in addition to a basal diet, they developed significantly higher percentages of ash in their bones than did rats receiving only a basal diet deficient in vitamin D. Either the green or the artificially dried grass produced calcification as efficiently as the herbage cured by exposure to 15 hours of sunlight. When fed as 3 percent of the dry matter of the ration, there was sufficient of the calcifying factor in the grass to cause an increase in the calcification of the bones in the experimental animals. Dehydration at high temperatures for a short time did not destroy the calcifying property of the herbage.

Dried Grass May Displace Some Grain

Two feeding trials were conducted in which dried grass was substituted for part or all of the grain mixture fed to milking cows. In the first experiment, cows in heavy production were fed, in addition to alfalfa hay and silage, a grain and grass mixture of which 20 percent was artificially dried grass. The cows ate slightly less grain-grass concentrate mixture, gained less weight, and produced a little less milk than when they received a similar ration in which wheat bran and linseed meal were substituted for the grass. The consumption of feed and total digestible nutrients per unit of production, however, was slightly in favor of the experimental mixture.

The addition of grass to the concentrate mixture made it rather bulky, though it was palatable and readily eaten. The comparative differences were small, and indicated that where an adequate supply of artificially dried grass is available it may be efficiently substituted for as much as 20 percent of the protein-rich concentrate mixture.

In the second experiment, 2 cows were maintained on a ration of alfalfa hay and artificially dried grass for 4 weeks and then switched to an all-alfalfa ration, as compared with 2 other cows that were put on an alfalfa-alone ration and then changed to an alfalfa-hay and dried-grass ration. The addition of dried grass to the alfalfa-alone ration of milking cows caused a greater consumption of total digestible nutrients. This greater consumption of nutrients produced a larger gain in live weight and a larger output of milk and butterfat. While the nutrient consumption per unit of production was approximately the same, the increased consumption of feed brought about by the addition of dried grass to the ration caused the cows to produce more milk.

This experimental work demonstrates that a home-grown feed palatable to dairy cattle, and having a high protein content, can be produced from pastures by frequent cutting and artificial drying of the herbage; that artificial drying within certain temperature limits does not affect the nutritive value of herbage either in the organic or the inorganic constituents; and that artificially dried pasture grass may be used efficiently with other roughage feeds, and as a substitute for protein-rich concentrates in the rations of lactating dairy cows. The cost for drying equipment is the major item which limits a more general use of this means of preserving forage crops for feeding purposes.

R. E. Hodgson, *Bureau of Dairy Industry.*

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BACTERIAL Wilt of Corn Combated by Use of Resistant Strains

Bacterial wilt or Stewart's disease of corn is caused by a bacterial parasite (*Aplanobacter stewarti*). This organism grows abundantly in the vessels or water-conducting system of the corn plant and comes out as viscid yellow drops on the cut ends of badly infected stalks (fig. 2). The disease may attack the plants at any stage in their growth. Young plants may wilt and die, or if they continue to grow may remain stunted. Tassels develop prematurely, and the leaves wilt one after

FIGURE 2.—Cross section of stalk of corn badly infected with bacterial wilt and showing yellow ooze from cut ends of vessels. Magnified three times.

the other (fig. 3). Long, light green to yellow streaks extend through the leaves. Infected plants that develop to normal height may be barren or produce only nubbins. Because of the dead and stunted plants, badly infected fields are very uneven.

This disease was first described on sweet corn in 1897 by F. C. Stewart, who found it widespread and abundant in the market gardens of Long Island, N. Y., frequently causing losses of 20 to 40 percent and sometimes destroying whole fields. He found that the earliest-maturing varieties of sweet corn were the most susceptible and that late varieties were resistant. To control the disease he

recommended that only late-maturing, resistant varieties be grown and that care be taken in selecting clean seed. His recommendations were not followed, for the most desirable varieties of sweet corn for table use are the early-maturing susceptible varieties. Market and home gardeners continued to grow them, and so to produce much infected seed. In 1899 the disease was found in New Jersey, and in 1903 it was observed for the first time in Maryland and Virginia. It was gradually found southward through Pennsylvania, Maryland, and Virginia and in the Carolinas and Georgia and westward through the Corn Belt in Iowa, Missouri, Kansas, Texas, New Mexico, and California. The disease did not extend into the northern tier of States with the exception of southern New York, southern Michigan, Massachusetts, and possibly North Dakota and South Dakota.

FIGURE 3.—Golden Bantam hybrid: *A*, Normal plant; *B*, stunted plant infected with bacterial wilt, tassels premature.

Damage Heavy in Recent Years

With the continued spread of the disease the annual losses also steadily increased. In most years losses were not great, but in the older disease areas, such as Maryland and Virginia, it finally became necessary to grow only the late-maturing, resistant varieties such as Stowell Evergreen and Country Gentleman. In a few exceptional years losses were heavy, and then again the disease became of minor importance. During the seasons of 1931–33 wilt was more widespread and destructive than ever before in its history. It spread northward into Wisconsin, central Michigan, and New York, into Ontario, Canada, and into Maine and New Hampshire. Throughout the Corn Belt losses were heavy in susceptible varieties, and losses of 10 percent in late resistant varieties were common. In 1932 Indiana reported a loss of 50 percent in early plantings of susceptible varieties; Pennsylvania, 45 percent; Iowa, 5 percent; New York, 10 percent; Connecticut, 3 percent; and Massachusetts, 0.5 percent. In 1933 Michigan reported 93 to 100 percent infection in early varieties such as Spanish Gold, Golden Gem, and Extra Early Bantam; 64 to 91 percent infection in midseason varieties such as Sunshine and Golden

Bantam; 10 to 29 percent in Stowell Evergreen; and 3 percent in Country Gentleman. These were percentages of infected plants and not actual losses.

This most recent epidemic of bacterial wilt occurred following a succession of mild winters. The winter of 1933–34 was much more severe throughout the Central and Northern States, and reports for the 1934 season indicate that the disease was again much less severe.

Introduction of the disease into new localities is at least partly brought about by infected seed. The wilt organism lives from one season to another inside the seed. It is not known how effective seed treatments are in controlling this seed-borne infection. The use of clean seed where the disease has not become established is important, but the use of clean seed of susceptible varieties grown where the disease does not occur is of doubtful value in wilt-infested areas. Experience has shown that such strains are often more susceptible than strains grown in wilt-infested areas.

Organism Overwinters in Flea Beetle

The percentage of diseased plants even from badly infected seed is so low that it accounts for only a small part of the early infections on young plants in the field. Recently it has been learned that the wilt organism lives over winter in one of the common flea beetles (*Chaetocnema pulicaria*). In the spring such beetles carry it to the young corn plants on which they feed. Possibly this accounts for a large part of the early infections. A great increase in number of diseased plants during midseason also is brought about by this same beetle. Infections on the leaves may be seen starting from the feeding injuries on the outer halves of the leaves and progressing down through the leaf blade to the stalk. It was this type of leaf infection that occurred in dent corn in Illinois in 1932. The insects feed on resistant as well as susceptible varieties of corn, but on the resistant varieties the infections are much more restricted in area and develop more slowly, so that the injury is usually confined to the outer halves of the leaves. On the other hand, in susceptible varieties the bacteria work back into the stalks more rapidly, and then out into the whole plant.

The wilt organism overwinters in old, infected cornstalks in the field, but it is not known how important this is in starting the disease in the spring. Crop rotation has not been shown to be effective in controlling the disease.

The control measures recommended by Stewart in 1897 still hold good. Use clean, disease-free seed in sections where the disease does not occur, and plant resistant varieties in sections where the disease has become established. The development of wilt-resistant, early-maturing, high-quality sweet corn is making it possible to practice the second and by far the most important method of control.

Resistant Strains

During the past several years plant breeders in the Central and Eastern States have been taking advantage of the marked differences in resistance and susceptibility of varieties of sweet corn. By methods of inbreeding and crossing they have been developing early-maturing, wilt-resistant strains which are as desirable for table use as the original early varieties which were so susceptible to wilt. In

1933 seed of one of these early resistant strains known as Golden Cross Bantam, developed by the Department in cooperation with the Purdue University (Indiana) Agricultural Experiment Station, was sold for the first time by a number of seed companies. This hybrid proved very popular. Reports from several States were encouraging. Very little wilt occurred on Golden Cross Bantam when other early-maturing varieties suffered heavy losses. From Ohio it was reported that the only good fields of early sweet corn were Golden Cross Bantam. This variety is 4 to 8 days later than the earliest Golden Bantam, but still earlier strains are being developed. A number of other early resistant strains of sweet corn, developed by the Connecticut Agricultural Experiment Station, are now being commercially produced. With the general planting of these resistant strains heavy losses from this disease can be avoided.

CHARLOTTE ELLIOTT, *Bureau of Plant Industry.*

BARK Beetle Control in Western Forests Aided by Work of C. C. C. Camps

The establishment of the Civilian Conservation Corps in the spring of 1933 made available a new force for the protection of our national forests and parks. Up to that time bark beetle control projects had been manned by local labor skilled in the ways of the forest. Camps comprising about 25 men were established as working units in the infested areas, wages were in line with those paid for skilled woods labor, and a thoroughly efficient job with low costs for volume of timber treated was expected and ordinarily obtained. The C. C. C. camps, as they were set up to handle all types of forestry projects, presented an entirely different sort of human material with which to conduct these campaigns. These camps were made up of labor in company units of about 200 men. Only young men between the ages of 18 and 25 were enlisted, the great majority of whom came from the cities and included boys unskilled in the use of woods tools. The training of the C. C. C. men in the physical work of felling, limbing, and peeling trees at first required considerable attention. Gradually, however, the men became proficient in the use of tools.

In California a fairly large-scale program was carried on during the summer of 1933 on national parks and in national-forest recreational areas. This was possible because climatic conditions permitted the use of solar heat, in lieu of fire, for destroying the bark beetle broods during the season of high fire hazard (fig. 4). In southern California the work was concentrated in areas of high recreational value, where 4,957 trees containing the equivalent of 2,760,000 board-feet of lumber were felled and the insects destroyed. In the Yosemite National Park work was continued throughout the summer in the sugar pine forests, where the trees were of great size and value. During the winter months the work was conducted to better advantage, as many of the boys who had acquired experience during the summer reenlisted, and the winter program was concentrated in commercially valuable timber on the Modoc, Lassen, and Stanislaus National Forests. In the entire State 9,200 trees with a volume of 8½ million board-feet were treated by C. C. C. labor between July 1, 1933, and April 1, 1934. Approximately 350,000 acres of forest land were included in the program. Forty technical men were employed as insect-control foremen and

spotters for the supervision of these projects. The number of enlisted men assigned to this activity ranged from 200 to 300, according to the seasonal conditions of the work.

In Washington and Oregon control work in the suppression of bark beetle outbreaks was conducted largely on national parks and Indian reservations. During the spring of 1933 the two C. C. C. camps in Crater Lake National Park contributed 4,581 man-days in the treatment of 6,349 infested lodgepole pine trees. This work represented the final clean-up of an infestation that had been running for several years, and was so effective that only 13 infested lodgepole pine trees could be located for treatment in 1934. In 1934 the program for this park consisted in mopping up some scattered infestations in ponderosa and sugar pine, and 142 trees were treated by the C. C. C. boys. On the Yakima Indian Reservation a virulent outbreak of the western pine beetle was combated on 7,160 acres by crews of Indian boys in

FIGURE 4.—C. C. C. workers in Yosemite National Park preparing timber for destruction of broods of the western pine beetle by solar heat.

the C. C. C. camps. A total of 2,383 infested ponderosa pines were felled, peeled, and burned during the fall of 1933 and spring of 1934, resulting in a marked reduction of timber losses on this reservation.

In the northern Rocky Mountain region several thousand trees in the Yellowstone National Park and on the Medicine Bow, Montezuma, Kootenai, and Shoshone National Forests were treated by C. C. C. labor during 1933 and still more in 1934.

In addition to control work, some special research and survey projects were carried on with the aid of C. C. C. labor. A few men, who had sufficient education and who showed adaptability for such work, were placed on special assignment under the direction of the Bureau of Entomology. These men worked, as assistants, immediately under a forest entomologist in obtaining basic data needed in determining the status of the bark beetle populations in areas where control work was contemplated. In California C. C. C. men aided in a study of the effects of a cold wave during the winter of 1932–33, which killed a large

proportion of the beetle broods, by determining the area affected by the cold. In Oregon and Washington and in the Rocky Mountains selected men from the C. C. C. camps assisted in conducting surveys to determine the need for control. During 1933, 37 of these men covered 18,240 acres of sample plots with intensive check cruises. They also assisted in analyzing the emergence from 2,879 square feet of bark affected by the winter freeze to determine the influence of this cold weather on bark beetle outbreaks.

J. M. Miller,
Bureau of Entomology and Plant Quarantine.

Beech Scale Scouting Reveals Infestations in Four New England States

The beech scale was first discovered in the United States in 1929 on American beech in the Arnold Arboretum, Boston, Mass. Its first occurrence in North America, however, was reported in 1911, when it was found infesting both native and ornamental European beeches in the vicinity of Halifax, Nova Scotia. In 1932 it was reported to have spread generally throughout the Maritime Provinces of Canada, and that many of the infested beech trees had died. This insect is well distributed over western Europe, and in some countries the infestation has at times been severe and followed by an extensive killing of beech trees.

Figure 5.—Trunk of American beech tree heavily infested with the beech scale.

The discovery of the scale in the United States on American beech (*Fagus grandifolia* Ehrh.), and also on varieties of European beech (*F. sylvatica* L.), threatened danger to the beech in this country. In 1931 the Bureau of Entomology, through its laboratory at Melrose Highlands, Mass., undertook a survey of the beech growing on or near many of the roadsides in each of the New England States. In this work they were assisted by the Maine Forest Service, the New Hampshire State entomologist's office, and the Massachusetts Department of Conservation. Scouting for new infestations was carried on for short periods each

year and occasional notes were made on the biology of the beech scale until September 1933, when a substantial allotment of E. C. W. funds made it possible to enlarge the scope of the work considerably.

As a result of this work infestations of the scale have been located as follows: Maine, 57 towns in 8 counties; New Hampshire, 3 towns in 2 counties; Massachusetts, 14 towns in 4 counties; and Connecticut, 1 town. The heaviest infestations have been found in Washington, Hancock, and Waldo Counties, Maine, where large forested areas of native beech are involved, and in scattered growth in eastern Massachusetts.

The beech scale has a single generation a year. In New England eggs are deposited from the middle of June until August. Hatching begins about the 1st of August, and by the 1st of October practically all the crawlers, as the newly hatched larvae are called, have become fixed by inserting their beaks in the bark. The secretion of woolly wax begins immediately and continues for a time in the fall, but the maximum deposition occurs the following spring and summer. In heavy infestations this wax may completely cover the trunk (fig. 5) and the under sides of the larger branches. Trees of all ages, including seedlings and saplings, have been found infested with the scale. The scale overwinters as the fixed immature form. In May it transforms to a preadult, and about 15 days later it becomes mature. No males or winged forms of this species are known. Distribution is accomplished by the wind and by transportation of eggs and crawlers by birds, insects, etc.

Permanent Sample Plots Established

In order to study the injury caused by this insect and the associated fungus, *Nectria* sp., several permanent sample plots have been established in southeastern Maine. A survey of conditions on these plots in October 1933 showed that trees infested with the scale were less healthy than uninfested trees. Many dead and dying beeches were found in Washington and Waldo Counties, and such trees were usually infected with a fungus belonging to the genus *Nectria*. This fungus has not been found associated with the scale in New Hampshire, Massachusetts, or Connecticut.

In feeding, the scale inserts its beak into the bark for about 1.5 millimeters. Individual scales probably cause little or no injury, but when colonies of several hundred per square inch are present, the outer layer of the bark is killed and becomes brown. When a tree is heavily infested with the scale, extensive areas, often more than 50 percent, of the outer bark are killed. When the bark is removed, it is found that the killing often extends to the cambium and occasionally the sapwood is discolored. Slime fluxes often develop, and the cambium is killed for a radius of 2 or 3 inches from the point of injury.

Whether the tree would ultimately die from such injury without the aid of the *Nectria* has not yet been determined, but this seems to be possible if the areas of affected sapwood are sufficiently large to girdle the tree. If for some reason, such as winter-kill, the scale infestation disappears, the tree often shows recovery by producing healing tissue around the wound. When this takes place, a depression or pit is formed in the bark, giving the trees a gnarled appearance, especially

where the pits are numerous. In Washington County, Maine, many trees show these pits.

Observations made during May and June 1934 showed that the scale is very susceptible to low winter temperatures. In southeastern Maine over 95-percent mortality occurred above the snow line, while near the ground and on roots there was little mortality that could be attributed to low temperatures. In the vicinity of Boston, Mass., there was no appreciable mortality from this cause.

One Natural Enemy of Importance

Only one natural enemy of importance has been found in New England. The predacious ladybird beetle known as the twice-stabbed ladybird, *Chilocorus bivulnerus* Muls., was especially effective in southeastern Maine during the spring and summer of 1934. With the reduced host population resulting from the abnormally low temperatures of the previous winter, which affected the beetle little or not at all, an opportunity was afforded for the predator to be most effective as a control agent. Observations at Liberty (Waldo County), Maine, have shown that on heavily infested trees, upon which the beetles prefer to congregate, the scale population has been reduced by fully 90 percent; on lightly infested trees the percentages of hosts destroyed were considerably less.

The impracticability of spraying large forested areas is recognized, but there is a need for controlling the beech scale by artificial methods in park and ornamental plantings. This insect may be controlled with a dormant spray of lime-sulphur, either the liquid form diluted at the rate of 5 gallons in 95 gallons of water or the dry mixture at the rate of 12 pounds to 100 gallons of water. Oil sprays should not be used indiscriminately on beech, as some brands are liable to injure the trees if applied in sufficient strength to kill the scale. The use of oils in controlling the beech scale is being given further study.

C. W. Collins and R. C. Brown,
Bureau of Entomology and Plant Quarantine.

Beef Cattle Especially Adapted to Gulf Coast Area Being Developed

The popular breeds of beef cattle in the United States—the Aberdeen-Angus, Hereford, and Shorthorn, all of British origin—have adapted themselves well to the greater portion of our vast beef-production areas. Owing to a combination of factors largely climatic, the breeds mentioned do not meet fully the requirements of the extreme South, particularly the Gulf coast area. The principal reasons appear to be the warm climate, low feeding value of native vegetation, and lack of sufficient hardiness in highly bred beef cattle to combat semitropical conditions.

The solution to this difficulty of adaptation appears to be not the finding or development of an entirely new breed, but rather a combining of the beef-producing ability of the British breeds with hardiness to tropical or semitropical conditions, as observed in some other foreign breeds and types. A distinct beginning in this direction was made in 1906, when the Pierce Estate of Wharton County, Tex., brought from India 30 bulls and 3 cows of the Nellore and other breeds of Brahman cattle. These were used largely in crossing with Here-

fords and Shorthorns. In 1924 another noteworthy importation of Indian cattle was made by John T. Martin, San Antonio, Tex. It consisted of 29 bulls, principally of the Guzerat breed, that had previously been imported into Mexico from South America. The Guzerat bulls were larger and beefier than those of any previous importations, and they have "nicked" well with the native cattle, as well as with Herefords and Shorthorns in southern Texas.

Using both Indian and British breeds of cattle, Robert J. Kleberg, Jr., Kingsville, Tex., has been successful, after about 15 years of constructive crossbreeding, in developing a meritorious Brahman-Shorthorn crossbred type of approximately three-eighths Brahman five-eighths Shorthorn blood. This type, which he named "Santa Gertrudis", is red in color, very deep of body, of good beef conformation, hardy with extreme "scale" (weight for age), showing great adaptability and seemingly breeding true to type.

Experiments Show Influence of Brahman Blood

The value of Brahman breeds crossed with Hereford and Shorthorn cattle is evident also in breeding and feeding experiments conducted

FIGURE 6.—First-cross yearling Guzerat-Aberdeen-Angus bulls.

by the United States Department of Agriculture at the Iberia Livestock Experiment Farm, Jeanerette, La., and at Kingsville, Tex., in cooperation with the State agricultural experiment stations of Louisiana and Texas. These and other investigations of the Department in cooperation with private breeders indicate that Guzerat and Nellore cattle have considerable value when crossed with established beef breeds in the development of a beef-type crossbred that will utilize the native grasses of the Gulf coast country to advantage in the production of cattle to be finished on pasture.

Experimental data show that part-Brahman calves weighed 91 pounds more at weaning time off grass than highly bred calves of the British breeds under the same conditions. This increased weight, together with a slight increase in selling price, enabled the part-

Brahman calves to bring a greater gross return of approximately $6 per calf. In dry-lot fattening the part-Brahmans compared favorably with highly bred beef calves in fattening periods of 150 days or less, but for longer periods they were not so satisfactory, making smaller gains and using more feed per unit of gain. Part-Brahman cattle, however, were usually superior in dressing percentage and this usually offset the higher carcass value of the non-Brahmans.

The foregoing observations of the comparative performance of purebred beef cattle and Brahman crossbreds indicated the possibility of developing beef cattle still more adaptable to the area and more acceptable to the meat trade than any yet produced. About 3 years ago, in the hope of developing a crossbred having a small percentage of Brahman blood and the polled characteristic, solid color, and beefy conformation of the Aberdeen-Angus breed, the Department began a project at Jeanerette, La. Here purebred Aberdeen-Angus females were bred to a purebred Guzerat bull. More than 83 percent of the first generation of calves were black in color, but all the bull calves had either horns or scurs and 73 percent of the heifers showed signs of horns. The conformation and color of the first-generation crossbred Guzerat-Aberdeen-Angus offspring (fig. 6) have been rather satisfactory, being superior to those produced in the early experiments with Brahman bulls and Hereford and Shorthorn cows. Four first-generation heifers were bred to an Aberdeen-Angus bull with the result that the next generation of calves (one-fourth Guzerat and three-fourths Angus) were 100 percent polled and 100 percent black.

Africander Cattle Being Bred Pure and in Crosses

The desire of cattlemen in southern Texas to import additional foreign cattle, developed under semitropical conditions, to cross with their beef breeds and the impossibility of importing more Brahman cattle because of quarantine restrictions, led to an importation of Africander cattle. The Bureau of Animal Industry cooperated in this undertaking by furnishing the writer's services for selecting the cattle and handling the importation from Africa to the United States.

FIGURE 7.—Two-year-old purebred Africander heifers 1 year after arrival in the United States.

During October 1931, 16 bulls and 13 females of the Africander breed were selected in the Provinces of Transvaal, Orange Free State, and Cape of Good Hope, in the Union of South Africa. The cattle arrived at New York in December, were quarantined for 90 days, and sent to the King and Kenedy ranches at Kingsville and Sarita, Tex., respectively.

The cows and heifers of this importation (fig. 7) have been bred each year to purebred bulls of the same breed, to increase the number of purebred Africanders. Every female in the original importation

has proved to be a breeder, the older cows having produced calves each year since their arrival.

The Africander bulls, in addition to their use as sires of purebreds, have been used extensively in crossbreeding experiments with Shorthorn, Hereford, Devon, and Brahman cows on ranches in southern Texas. Several hundred crossbred calves have been produced from these matings. The crossbreds from the Shorthorn cows have been very promising as calves and yearlings. They have excellent beef conformation, being deep, wide, and smooth, and are of a deep-red color. Crossbred calves from the Hereford cows have shown great uniformity in type, conformation, and color markings, and have responded well to feeding in the dry lot. Their gentleness in the feed lot, as compared with other breeds and crossbreds having Brahman blood, was particularly noticeable. In the crossbreds having Africander blood, there has been a degree of smoothness not found in the crossbreds carrying Brahman blood.

Polled Crossbred of Beefy Type Sought

At Jeanerette, La., the Department is testing a cross resulting from the use of Africander bulls with Aberdeen-Angus cows. Ten choice registered Aberdeen-Angus heifers and two purebred red Aberdeen-Angus females—red color being unusual in this breed which is typically black—were bred during the summer of 1934 to an Africander bull, in the hope of developing and fixing a polled type of crossbred that will be beefy and of a desirable color, either red or black.

Although cattle with either Brahman or Africander blood may not have a commercial place in many of the important beef-production areas, their hardiness and ability to utilize the southern grasses near the Gulf coast advantageously make the studies here outlined of interest to producers in that section and in regions where droughts are frequent. Brahman and Africander cattle were developed in countries where grazing conditions were extremely poor and watering places often far apart.

It must be kept in mind, however, that nothwithstanding the merits of Indian and African cattle the characteristics which are most sought after in the desirable beef carcass probably can be obtained best by using a predominance of blood of beef breeds of British origin.

W. H. Black, *Bureau of Animal Industry.*

Berry Breeding Has Made Available Some Valuable New Varieties

Up to the present time 7 new varieties of strawberry, 2 of raspberry, 1 of blackberry, and 1 of gooseberry have been introduced as a result of the breeding work of the United States Department of Agriculture.

The Blakemore strawberry, introduced 5 years ago, is a superior general-market variety for the South which is especially desirable for use by preservers. About 10,000 acres of this variety fruited in 1934. The Southland is a high-quality home-garden variety for the South, the Redheart a canning and freezing variety for Oregon and Washington, the Bellmar a handsome general-market sort for Maryland and New Jersey, and the Dorsett, Fairfax, and Narcissa very high-quality market and home-garden sorts, Dorsett and Fairfax for the

region from Maryland to southern New England and west to Kansas and Nebraska, and Narcissa for Oregon and Washington (fig. 8).

Strawberry breeding is being continued to develop high-flavored, firm, commercial varieties for the South, late commercial varieties for the North, canning and preserving varieties for the Northwest, root-rot-resistant varieties, etc. Over 1,000 selections from hun-

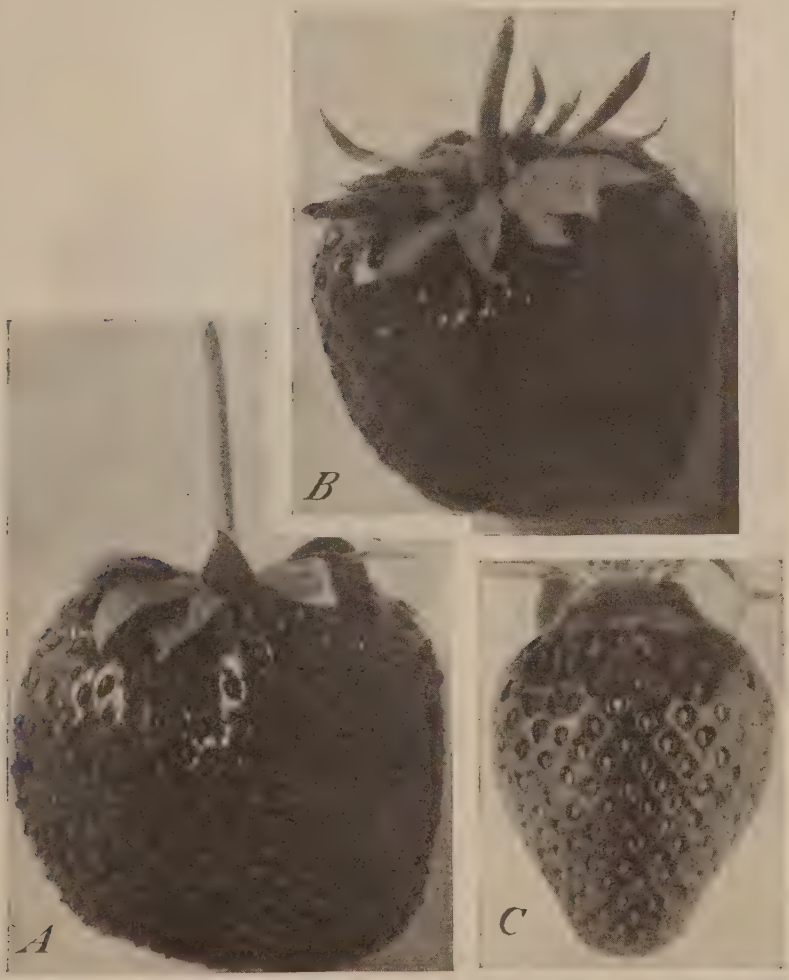

FIGURE 8.—Three of the new strawberries originated in the breeding work of the United States Department of Agriculture: *A*, Fairfax, a sweet, highly flavored table berry; *B*, Dorsett, a slightly more tart, highly flavored table berry; *C*, Blakemore, a tart, general market and preserving variety.

dreds of thousands of seedlings are being tested for their value for such purposes.

The Fotomac purple raspberry has been introduced as a hardy canning and preserving variety relatively resistant to leaf spot and anthracnose (fig. 9). The Van Fleet, a hybrid between an Asiatic wild raspberry and the Cuthbert red raspberry, has been introduced for southern regions as a home-garden sort. Other Asiatic wild rasp-

berries are being hybridized with red, black, and purple sorts in an attempt to get kinds adapted to the Southern States. One of these recently hybridized sorts is a trailing red raspberry which succeeds several hundred miles south of the present commercial raspberry regions and which is resistant to the common serious diseases.

The Brainerd blackberry is a hybrid of the Himalaya, a European blackberry, and an American erect blackberry, and is a productive variety of high quality which is adapted to regions from North Carolina to Maryland and west to the Pacific coast. It ripens about a month after American blackberries. Other blackberry selections similar to the Brainerd are being tested. Breeding work is also

FIGURE 9.—*A*, Cluster of the Potomac purple raspberry, a hardy preserving and canning sort; *B*, a quart of the Potomac.

under way with selections of the native wild blackberry of the Pacific coast from which the Logan is derived.

G. M. DARROW and G. F. WALDO,
Bureau of Plant Industry.

BLANKETS Vary Widely in Desirable Properties, Various Tests Indicate Many homemakers want more definite facts than are now available on the quality of the goods offered on the retail market. Accordingly, the Bureau of Home Economics has been testing some of the staple textile materials. A study of 30 household blankets purchased in retail stores has been carried on this past year.

An effort was made to decide what qualities the consumer desires most. This varies with different articles. In the case of blankets, warmth and durability are usually given first consideration.

The warmth of a blanket depends upon how much it will resist the passage of heat and air. In textile laboratories heat transmission is determined by measuring the amount of heat required to maintain a disk at body temperature when it is covered by a piece of the blanket and the other side of the sample is exposed to air at room temperature. The results are reported as the number of calories per second that will pass through 1 square foot of blanket when there is a temperature difference of 1° C. between the upper and lower surfaces of the fabric. Thus the lower the heat transmission, the better insulator the blanket will be.

As is shown in table 1, the heat transmission of the 30 blankets tested varied greatly. In the group of 25-percent wool blankets, one transmitted 0.081 calories and another 0.142 calories, almost twice as much. The differences within this and other groups were due of course to the construction of the fabric and the different amounts of napping.

TABLE 1.—*A summary of some of the physical properties of 30 blankets*

Composition and blanket	Composition		Weight per square yard	Thickness	Thread count		Breaking strength of filling grab method	Heat transmission calorie per ° C. per second per square foot	Air permeability cubic feet per minute per square foot per pound pressure difference
	Wool	Cotton			Warp	Filling			
All wool:	*Percent*	*Percent*	*Ounces*	*Inches*			*Pounds*		
A	100.0	0	14.9	0.132	26.7	18.3	50.4	0.060	85
B	100.0	0	14.1	.172	34.0	25.5	18.8	.057	69
C	99.5	0.5	13.1	.126	25.5	34.0	14.0	.074	122
D	100.0	0	13.0	.149	31.5	26.9	51.9	.051	95
E	100.0	0	12.5	.143	29.0	28.0	21.5	.059	106
F	99.6	0.4	12.1	.137	24.4	33.1	26.4	.063	94
G	100.0	0	11.2	.146	30.0	13.3	10.9	.059	155
H	100.0	0	10.4	.122	24.1	24.9	12.4	.079	119
I	100.0	0	8.6	.093	29.7	30.7	18.0	.108	149
J	100.0	0	8.5	.086	26.7	25.3	28.5	.117	173
K	100.0	0	8.4	.085	29.0	27.7	10.7	.099	165
Wool and cotton (household):									
L	80.4	19.6	14.7	.180	32.1	31.3	60.2	.064	115
M	83.9	16.1	12.2	.144	39.5	56.4	22.0	.059	115
N	46.4	53.6	11.6	.141	35.0	47.1	13.7	.078	99
O	28.8	71.2	12.4	.146	48.1	29.0	33.9	.084	94
P	28.2	71.8	7.0	.072	38.0	19.7	14.7	.111	176
Q	26.0	74.0	7.5	.079	37.4	32.0	4.6	.117	146
R	25.5	74.5	9.9	.086	21.9	24.0	18.4	.142	114
S	24.7	75.3	11.8	.130	35.5	44.3	34.7	.081	100
T	16.5	83.5	8.2	.082	38.3	28.7	7.6	.116	83
U	5.6	94.4	6.9	.076	36.1	24.1	20.7	.120	95
Cotton:									
V	7.8	92.2	9.4	.108	34.2	32.0	19.2	.095	105
W	2.3	97.7	11.1	.124	44.9	34.6	21.1	.094	71
X	1.2	98.8	7.6	.088	41.6	27.7	9.6	.084	80
Y	0	100.0	4.6	.040	27.1	24.9	11.0	.141	147
Camp:									
1	81.1	18.9	12.2	.082	19.5	15.7	10.5	.113	64
2	61.7	38.3	12.4	.097	22.7	20.0	18.9	.123	59
3	58.6	41.4	14.8	.118	37.7	35.0	23.8	.097	44
4	49.3	50.7	19.1	.150	23.0	27.8	33.6	.084	44
5	29.4	70.6	12.6	.087	22.0	19.0	25.6	.136	46

Measuring the Air Permeability

The air permeability of a fabric is a very different property from its heat-insulating power. A blanket may be warm in still air but offer little protection in a drafty place or out of doors. The per-

meability of a fabric to air is measured by reading the pressure drop across the sample and across a calibrated orifice (a circular opening) when air is drawn through the fabric and the orifice. It is expressed as the number of cubic feet of air that will pass through 1 square foot of fabric in 1 minute when there is a pressure drop of 1 pound. Of two blankets with the same heat transmission, the one with the lower air permeability will be the warmer. The air permeability of the camp blankets tested varied from 44 to 64 cubic feet while those for the household blankets ranged from 69 to 176 cubic feet. Household blankets do not need to be so resistant to moving air since they are generally used indoors and with a sheet or other cover.

The durability of a blanket depends on its resistance to abrasion and its breaking strength. There is no standardized abrasion test. The breaking strength is measured by the number of pounds (pull) required to break 1 inch of the fabric. Table 1 shows quite a range of values for this property. For example, among the all-wool blankets, one had a filling strength of 52 pounds and another only 11 pounds, with the rest scattered in between. Similarly the 25-percent wool group ranged from 5 to 35 pounds in the filling breaking strength.

Blankets generally are weaker in the filling direction than in the warp because the filling yarns have been brushed up to form the nap. Therefore, only the breaking strength of the fabric fillingwise is reported, since after all a fabric or any other material is only as strong as its weakest point. All blankets are napped, some more than others, but the construction must be such that raising the nap will not seriously injure the foundation fabric. Close, loosely twisted filling yarns made of long fibers give a durable nap that will not pluck off easily or come off when laundered. The thread count or number of threads in 1 inch indicates the closeness of weave.

The weight per square yard of the blanket is also significant to the purchaser, since, if the fibers are the same kind, this is a way of telling how much fiber is being obtained for the money expended. All-wool blankets weigh from 8 to 15 ounces per square yard and 25-percent wool from 7 to 12 ounces. The warmth and durability are dependent on weight. As shown in the table, blankets I, J, and K, which are much lighter in weight than the other eight all-wool ones, transmitted much more heat, in some cases twice as much. The air permeabilities were also high. A desirable all-wool blanket has a minimum weight of 12 ounces per square yard.

The thickness was measured with a gage known as a compressometer which measures the thickness while there is a definite pressure on the fabric. The 30 blankets analyzed varied as much in thickness, thread count, and air permeability as they did in heat transmission, breaking strength, and weight.

MARGARET B. HAYS, *Bureau of Home Economics.*

BOTULISM is a Factor in the Decrease of Western Waterfowl

In these days of apprehension regarding the welfare of our wild waterfowl—when added restrictions are being placed on hunting and there is increased activity in refuge establishment and in the restoration of former aquatic environments—the losses due to disease must not be overlooked. Persons who have witnessed serious outbreaks of botulism among ducks in

the West are already alarmed on this score, but many sportsmen and conservationists of the East, where the malady does not occur in its devastating intensity, do not yet realize the extent of waterfowl losses from this cause.

It was in 1910 that the western duck sickness, now known to be a form of botulism, first struck with unexpected violence at Great Salt Lake, Utah, and left in its wake literally hundreds of thousands of dead waterfowl and shore birds. The sheer intensity of this early epizootic has never since been equaled, although certain outbreaks of ensuing years have been strongly reminiscent of that early catastrophe, and the aggregate losses of western bird life from this one malady can truthfully be said to be in the millions.

Even as recently as October 1932 a serious outbreak at the north end of Great Salt Lake left dead waterfowl on the south shore of Willard Spur in numbers varying from 8,000 to 10,000 to the linear mile (fig. 10). It was estimated that fully 250,000 birds perished from

FIGURE 10.—Duck-sickness casualties on the shore of Willard Spur, Utah, in 1932.

this form of botulism in this general area in that year. Only 3 years earlier (1929), losses, estimated to be from 100,000 to 300,000 birds, occurred at the mouth of the Bear River nearby. In 1925, 100,000 waterfowl and shore birds died at Lake Malheur, Oreg., and that same year in northern California from 25,000 to 50,000 succumbed at Tule Lake. Earlier reports (1912) tell of 30,000 birds actually being picked up on the Weber River flats, Utah, and more than 44,000 gathered and buried on the grounds of one Utah duck club between August 22 and September 21 of that year. Even from Canada have come reports of tens of thousands dying at certain lakes in years of severe outbreaks. Such cases, are of course, extreme and fortunately are not of annual occurrence, but some birds perish from this sickness each year at all the principal points of infection, and when circumstances conspire to aggravate the menace, the mortality may become a matter of national concern.

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Geographical Range of Botulism

The range of botulism as an epizootic among wild birds conforms roughly to that of the alkaline waters and soils of the West. It extends from points in Saskatchewan and Alberta to the Mexican border and beyond; and from lakes in the eastern part of the Dakotas, southwestern Minnesota, western Nebraska, and the Panhandle of Texas, west to southern Oregon and the warm valleys of California. Within this range during the past 20 years the malady has appeared at an ever-increasing number of localities. Places where it had not previously been recorded may suddenly become the scene of pronounced mortality. Whether this is indicative of actual spread of the causative organism, or whether an increasing number of favorable environments are being created through changes in water conditions, is not clear, but there is no doubt that the likelihood of western waterfowl encountering areas of infection has increased perceptibly during the past two decades.

Correcting earlier concepts (according to which the malady, then called "western duck sickness", was considered to be a direct intoxication by alkali), recent studies by the Bureau of Biological Survey have shown the disease to be of bacterial origin. The micro-organism involved, technically known as *Clostridium botulinum*, type C, is an anaerobic saprophyte, thriving and producing under suitable conditions a powerful toxin to which most birds and some mammals are susceptible. The essentials for the bacterium's growth and toxin production in the field are quantities of dead organic matter, animal or vegetable, stagnation, reasonably high temperatures, and an alkaline (as opposed to an acid) environment. These conditions frequently are met in the West, where alkaline mud flats or shallow-water areas may contain quantities of dead organic matter in the form of the bodies of innumerable entomostraca, insects, mollusks, and other creatures, large and small. Dead vegetable matter also, including even grain from the season's crop, has shown to be a medium for toxin production when submerged in stagnant pools of alkaline water.

This disease is in fact nothing more than a form of food poisoning, and the likelihood of its occurrence is dependent primarily upon conditions affecting the welfare of a micro-organism, rather than on a weakened or predisposing condition of the victim. The number of species of North American wild birds known to have been affected by botulism under natural conditions totals 69, in 21 families, but it is the puddling duck or probing shore bird that, by reason of its feeding habits, is most likely to encounter and ingest the toxin. The browsing goose or the fish-eating tern, for instance, though susceptible, is less likely to contract the malady.

Many bird victims of botulism may be saved by removing them from infected areas and providing them dry and wholesome quarters in which to recuperate, but under field conditions there is little hope for individuals that have taken lethal doses.

Method of Combating the Malady

Since botulism, as an epizootic among wild birds, is essentially dependent on the existence of an unwholesome feeding environment, the most effective and lasting method of combating the malady lies in altering conditions affecting the water areas concerned. There

may be means yet to be discovered whereby this can best be done, but at present there are two ways: Either by draining and drying the infected area to the point where it will be wholly unattractive to waterfowl and unproductive of duck foods; or, better, by maintaining deep and stable water depths. By the latter means temperatures are lowered, the possibility of toxin formation is reduced, and any toxin that has been evolved will soon be dispersed or diluted to the point of harmlessness. The efficacy of water handling has been demonstrated many times and is the basis of the provisions made for waterfowl at the extensive Bear River Migratory Bird Refuge maintained by the Bureau of Biological Survey in Utah. The cause of the conditions favoring botulism in many cases has been the diversion of water for irrigation and other purposes, with the result that water and marsh areas that once maintained reasonably constant levels during summer, have been subject to great fluctuations in water depth and have often exposed extensive mud flats during periods of high temperature. Such conditions must be remedied to prevent botulism from continuing to take, perhaps increasingly, its annual toll of western waterfowl.

E. R. KALMBACH, *Bureau of Biological Survey.*

BROWN-TAIL-MOTH Control Work Under C. W. A. Greatly Reduces Abundance of Pest

The brown-tail moth was first found in the United States in Somerville, Mass., in 1897. It spread rapidly into all the New England States, and also into Canada, and became so injurious and obnoxious that its suppression became imperative. Since that time work has been carried on to keep this pest under control. The work has consisted chiefly in destroying the silken webs in which the caterpillars spend the winter, although spraying in June or July and the introduction of parasites that keep the insect in check in its native habitat, Europe, as well as quarantines, have also been of value. As a result the abundance of this pest has been greatly reduced, and for the past 10 years it has been found only in Massachusetts, Maine, New Hampshire, and Vermont.

In the summer of 1932 the larvae of this insect were unusually abundant, particularly in Maine and New Hampshire, but control measures were not applied so generally as usual. In 1933 large areas of orchards and ornamental and shade trees, and in some sections forest trees, were completely defoliated. Conditions were such that numerous complaints were made by residents, and localities frequented by summer visitors suffered from loss of business. After the foliage had dropped in the fall, it was evident that the infestation was unusually serious, and in many sections the trees were literally loaded with the winter webs of the pest. There was every indication that if nothing was done the insect would be so abundant in the summer of 1934 that greater areas would be defoliated and that heavy migration of the moth would result in spreading the insect to uninfested territory, possibly beyond the New England States. The urgent need for action was evident. It was believed that with adequate financial support and a properly organized campaign the pest could be brought under control and a beginning made in exterminating the insect.

C. W. A. Project Approved

On December 1, 1933, a Federal project was approved by the Civil Works Administration for the States of Maine, New Hampshire, Vermont, and Massachusetts, to be administered by the Bureau of Plant Quarantine, United States Department of Agriculture, in cooperation with the State entomologists and the moth superintendents in the cities and towns. An expenditure of $870,850 was authorized, and the work was organized as rapidly as possible.

It was necessary to close this work on February 15, 1934, and because of the time required to organize it, and the severity of the weather and heavy snowfall throughout most of the territory, it was not possible to complete the project as planned. The total expenditures were $514,443.47, which was 59 percent of the funds available, and 67 percent of the work that was planned was completed. The employment of 5,000 men was authorized and the average number employed during the period was 4,506. Nearly 98 percent of the funds

FIGURE 11.—C. W. A. workers cutting brown-tail moth webs near Concord, N. H., January 1934.

expended were paid for wages, and employment was given to many men during a portion of the year when no other work was available.

As a result of this work 29,144 miles of roadsides with adjoining farms and home grounds, including a total of 22,836,530 trees, were examined. On these trees 19,954,249 webs were cut and burned, and it is conservatively estimated that these contained more than 1,500,000,000 caterpillars. A total of 183,364 worthless infested trees were removed and burned, more than half of them being wild cherry and a large portion of the others old apple trees of no commercial value.

Heaviest Infestation in Maine and New Hampshire

By far the heaviest infestation was found in Maine and New Hampshire, more than 19,000,000 webs having been destroyed in these two States (fig. 11). In Vermont the insect was found in all towns bordering the Connecticut River as far north as Barnet, and it would prob-

ably have been discovered in adjoining territory if the work had been continued longer.

In Massachusetts, owing to the work that has been done annually in the towns, infestation on the whole was not alarming. In some towns there were notable increases in the number of webs found over those reported by the local authorities for the previous year. This condition was due in many cases to a curtailment of the control work during the previous year or two owing to the lack of financial support.

The abnormally cold weather during the winter caused heavy mortality of the small larvae in the webs in some sections of the territory, and thus aided in the reduction in the abundance of the insect. Conditions in the territory in 1934 show remarkable improvement over those of the previous year. There was some injury to foliage during the summer by caterpillars that survived in scattered areas, but it is believed that a comparatively small number of webs have been formed on the trees to carry the species through the winter.

The activities under the C. W. A. project clearly show the benefits that may be obtained by the collection and destruction of webs. The accomplishments also support the belief that intensive work over the infested area with trained personnel, followed by thorough reinspections for several seasons, will eliminate this insect from the United States.

A. F. Burgess,
Bureau of Entomology and Plant Quarantine.

Brush Fields Treated Before Planting so as to Insure Survival of Tree Growth

On thousands of acres of old burns new crops of trees have never started and conditions give little promise of tree growth coming in naturally. These areas have grown up to brush species which are practically valueless for forage because of impenetrability and low palatability, and are extremely hazardous from a fire standpoint. Once a fire starts in them it is hard to control, and is very likely to burn into valuable adjacent timber. The value of these brush fields in control of erosion depends upon slope and texture of soil.

Ordinary methods have not proved satisfactory in planting such areas. The dense brush hampers the progress of the planters and makes planting difficult. Survival is poor, for the root systems of the brush make almost complete use of plant food and water in the soil, and small mammals which inhabit the brush feed

Figure 12.—Tractor working a second time through a cleared strip.

voraciously upon the young planted trees. Any treatment that will insure the establishment of tree growth on these brush fields at a reasonable cost is desirable (fig. 12).

FIGURE 13.—The tractor pushes up a pile of dirt as it completes the clearing of a strip.

During the past few years the need for heavy motor-powered road equipment has developed the tractor trail builder, which has been found practical for preparing brush-field areas for planting. The tractor trail builder consists of a moldboard cutting edge about 8 feet long mounted on the front of a caterpillar-type tractor. This blade can be lifted and lowered by the operator by hydraulic power. The machine will clear strips approximately 6 feet wide through dense brush at the rate of from ¾ to 1 mile per 8-hour shift. In these cleared strips, trees can be planted by ordinary methods (fig. 13).

Planting on Cleared Strips

During the past 3 years a few of these cleared strips have been prepared and planted annually in a large brush field on the Lassen National Forest in California. A check plot through which no strips were cleared was also planted. The strips were cleared by lowering the blade of the trail builder so that its cutting edge barely penetrated the surface of the soil. This broke up the root crowns and cut off the brush without pushing too much soil out of the strips. Brush was not cleared between these strips. The width of the uncleared space between cleared strips varied from 20 to 30 feet. Ponderosa pine and Jeffrey pine of the 1–1 age class were planted in these cleared strips and the check plot. The standard 8- by 8-foot spacing was used in planting the check plot. The trees were planted in the center of the cleared strips at intervals of 6 feet. In both cases the open-hole method of planting was used. The total cost of planting in the cleared strips (including strip preparation, planting, and cost of trees) amounted to approximately 6 cents per tree. The total cost of planting in the check plot was approximately 4½ cents per tree. On a larger scale operation the total cost of planting in cleared strips could be reduced to about 4 cents per tree.

The trees planted in the check plot were a 100-percent loss. Between 75 and 80 percent of the trees planted in the cleared strips are growing. Very little of the brush has started sprout growth in the cleared strips. Rodent damage to the planted trees has been very severe, varying from some nipping to the total cutting off of the top in at least 50 percent of the surviving trees. Practically all damaged

trees, however, are making rapid recovery. Rodent-control measures are being carried on in connection with the current year cleared strip-planting work.

Under the N. R. A. program an allotment was received for preparation of brush fields on a larger scale. Three projects in different localities on the Lassen National Forest were selected, and 500 miles of the 6-foot strips will be cleared and prepared for plating. Eighteen hundred acres of dense brush field will be planted and with fire protection will be reclaimed for timber production.

C. W. Corson, *Forest Service.*

CHINCH BUG Campaign Successful in Protecting Corn from First Brood

The chinch bug severely damaged small grains and corn in a number of the Corn Belt States in the summer of 1933, and the unusual abundance of this insect during the summer and fall of that year indicated that even greater injury to susceptible crops could be expected in the spring of 1934. In anticipation of such an outbreak, both State and Federal agencies issued warnings and directions for control and urged the proper planting of crops to avoid severe injury.

As was predicted, a very heavy infestation developed in small grains in the spring of 1934, particularly in Missouri, Illinois, Kansas, and Iowa. In some areas the barley crops were almost completely wiped out. The abundance of these insects in small grains indicated the probability of a heavy migration to corn. The need for control became more urgent in view of the losses due to drought and in order to make yields more certain on the reduced acreage, under the A. A. A. program.

To provide effective measures for chinch bug control in the extensive area infested, Congress appropriated $1,000,000 for this purpose, and the funds were made available on June 8, 1934.

The chinch bug has long been one of the most destructive pests in the Corn Belt of plants belonging to the grass family. Its abundance is closely associated with climatic conditions, outbreaks of great intensity usually occurring in periods of drought. The insect itself is small, scarcely one-fourth inch long when adult; but it occurs in such tremendous numbers that it may kill the plants on which it lives by sucking the juices. It hibernates as an adult in bunch grass, wood lots, and other suitable cover, from which it flies to small grains when the weather becomes warm enough in the spring. The eggs are deposited around the bases of the plants of barley, wheat, oats, rye, or similar crops. Under conditions existing last year, the eggs were frequently laid in cracks in the soil around the roots of the plants. Upon hatching, the tiny bugs feed on the small grains, passing through a number of molts, until the grain hardens and matures or is cut. Then, being wingless in this stage, they migrate on foot in search of succulent food plants, the most common of which are corn, sorghum, and Sudan grass, and there complete their development. The bugs generally acquire wings, further distribute themselves over corn and other green susceptible crops, lay eggs, and produce a second generation. This second generation may also cause serious damage.

Methods of Indirect Control

There are a number of indirect methods of control which may be utilized in fighting this pest, such as destruction of the bugs, by burning or otherwise, in their winter quarters, and the separation of small grains from corn by plantings of nonsusceptible crops, such as alfalfa, soybeans, clover, and various truck crops. There are, however, no known means by which the chinch bugs can be economically controlled in the small grains.

The only method applicable at the time the Federal appropriation became available was the erection of barriers to prevent the migration of the small bugs from the small grains to corn and similar crops. A number of types of barriers are in common use. Sometimes a dust furrow is maintained around the margin of the cornfield, in which a log is continuously dragged at the time of day when the insects are

FIGURE 14.—A creosote barrier against chinch bugs in a Kansas cornfield. The man is standing in the furrow looking into a post hole. The corn in the foreground was completely destroyed previous to the erection of the barrier.

migrating—usually in the forenoon and late in the afternoon. In this way the bugs are killed by crushing and by exposure to the hot sun and dry, heated soil. Dust barriers are occasionally also maintained by going around the field continuously with a harrow. The dust barrier is fairly satisfactory with continuous working except when rainfall permits the insects to cross the dusty area. By far the most satisfactory barrier is a chemical one, constructed by plowing a furrow between the field of small grain and that of corn to which the bugs are migrating, throwing the soil toward the corn, and placing near the top of the furrow on the corn side a line of coal tar or creosote, which the bugs will not cross (fig. 14). At intervals along the furrow post holes are dug, and into these the insects fall, where they may be destroyed with kerosene or calcium cyanide, or by burning. The effectiveness of this method depends upon the erection of the barrier previous to the beginning of the migration. At the time the Federal funds became available, rather extensive migration was already in progress in the central and southern parts of the Corn Belt

and speed was required to construct the barriers in time to save the corn.

Federal and State Cooperation

The appropriation was made on the basis of a cooperative campaign to be conducted by the Federal Government and the States involved. In conducting this campaign the Government purchased and delivered the creosote used for barriers and provided limited supervision of field activity in cases where this could not be provided by the States, and the States were responsible for local storage, handling, and distribution, and actual application of the materials.

In order to obtain maximum effectiveness from the materials supplied, an extensive organization of State and Federal workers was formed. The activity in each State was under the direction of a chinch bug control committee, representing the State agricultural college, the State department of agriculture, and other interested agricultural agencies. This committee appointed a leader to direct the campaign in the State. The county agents, working under the State leader and his assistants, were responsible for the distribution of the creosote to the farmers according to their requirements. Headquarters for the Federal activity were set up at Minneapolis, Minn.

A total of 6,041,536 gallons of creosote and coal tar was purchased and delivered to the infested States within a month, shipments having been largely completed by the end of June. During the second week in June from 300,000 to 700,000 gallons were shipped per day.

In the following States infestation was severe enough to require extensive control measures: Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, Oklahoma, and Michigan. The most serious and widespread infestations were in Illinois, Missouri, Iowa, and Kansas, and here they were well under way when the appropriation bill was passed. Migration in Ohio, Minnesota, and Michigan began somewhat later because of the later season and the less severe drought in these States.

The results of this campaign in terms of actual saving are difficult to estimate because of the extremely heavy losses from drought in the States affected. Excellent results, however, were obtained in preventing the migration of the first-brood bugs into the cornfields, except in a few cases where the small grains stayed green long enough for the bugs to become mature and to migrate to corn by flight. Approximately 53,184 miles of barriers were maintained, and State workers estimate that they saved at least 1,500,000 acres of corn from destruction. It must be recognized, however, that the barriers are effective only in controlling the first-brood migration to corn and, as indicated above, further spread may result from the flight of the second-brood bugs, which cannot be prevented by barrier construction. It must also be borne in mind that the method of control utilized in this campaign was primarily one of corn protection rather than of chinch-bug destruction, and large populations of insects survived the summer.

The most satisfactory control methods are those indirect means of avoiding infestation by destruction of hibernation quarters and by proper plantings to remove corn from close proximity to infested small grains.

P. N. Annand,
Bureau of Entomology and Plant Quarantine.

CITRUS Byproduct Uses May Greatly Influence Fresh-Fruit Market

In the statistical section of this Yearbook will be found data showing the production of citrus fruits in the United States. These figures show that production is increasing rapidly. The rate of increase is greater than that of population. This means that the demand must be extended by creating new markets or new uses. Foreign markets are being supplied in part by other recently developed citrus-growing areas such as Palestine, South Africa, and Australia. Canned grapefruit has created a market for itself which can no doubt be extended. Because of its less perishable nature it is better adapted for distant markets than fresh fruit. Why should the citrus industry limit itself to only one product in exploiting these markets?

Virtually Noncompetitive Uses Available

Some citrus products may enter into competition with fresh fruit while others will have uses so far removed that competition will not be felt. Under citrus products which may compete may be listed canned grapefruit hearts and juice, and canned orange juice. When such products go to new markets or into new uses there is no competition and they may even serve to create a demand for citrus fruits. Many people have learned to eat grapefruit because they tried the canned product and immediately liked its milder flavor. There is a second class of products such as marmalades and beverages which in no way compete with the fresh fruit.

The Citrus Products Station of the Bureau of Chemistry and Soils at Winter Haven, Fla., has succeeded in developing on a laboratory scale a full line of alcoholic citrus beverages such as wines, brandies, and cordials. The wines are prepared by adding corn sugar to increase the sugar content of the juice to about 25 percent, inoculating with a pure culture of wine yeast, and allowing fermentation at a low temperature. The fermentation is followed by clarification and aging. Two distinct types of citrus wine have been prepared, one resembling a sauterne, the other a sherry. Brandies were prepared by distilling fermented sweetened citrus juices. Cordials were prepared by adding sugar, water, and oil from the peel of citrus fruits to citrus brandies. The results of this work point to the possible large-scale utilization of surplus and cull citrus fruits in the manufacture of products not in competition with fresh fruit.

These products are well adapted to large-scale manufacture at relatively low cost and to the utilization of surplus fruit not taken by other uses in that the quantity used in any single year can be adjusted to supply. Excess production of these products in a season of bountiful yield can be carried over to years of low yield with no deterioration but actual improvement in quality.

The preservation of unfermented orange juice by heat has not become of such commercial importance as that of grapefruit juice because of the difficulties encountered in retaining the flavor of the fresh juice. Results obtained during the past 3 years indicate that flash pasteurization following deaeration is well suited for the production of a satisfactory commerical product. The method consists of cutting the fruit in half and extracting the juice from the halved fruit on slowly revolving ribbed cones. Because flavor changes are due primarily to oxidation, the reamed juice is immediately deaerated. This is accomplished

by exposing the juice in thin layers to a vacuum of about 28 inches, thereby removing a considerable quantity of the dissolved gases. Although deaeration is not complete, this treatment has been found highly beneficial. After deaeration, the juice is pumped through the flash pasteurizer, consisting of a coil of tin pipe whose walls are about 2 millimeters apart, and surrounded by a steam jacket. Here the juice is exposed to a temperature not higher than 205° F. for approximately 5 seconds. It is then immediately cooled to 160° and filled into the containers at this temperature. The closed cans are cooled in running water. The process is continuous, and the juice, after being extracted from the fruit, is sealed within the final container in about 5 minutes.

Flash-pasteurized grapefruit juice yields a product superior to that obtained by exhausting and then sterilizing as now generally practiced on a commercial scale.

The criterion of the value of flash pasteurization rests on the stability of the product during periods of storage. It has been found that flash-pasteurized orange juice protected from high storage temperatures will retain an acceptable flavor for at least a year or even longer.

Both the alcoholic and the nonalcoholic types of citrus products have definite and promising commercial possibilities and thus will provide additional returns to the grower.

H. W. von Loesecke and H. H. Mottern,
Bureau of Chemistry and Soils.

Community Values May be Stabilized by Sustained-Yield Forestry The lumber industry in harvesting the virgin timber of the United States has created temporarily thriving industrial centers and prosperous communities. Almost invariably, however, timber cutting on the area economically tributary to any one center has proceeded at such rate that the available supply has been exhausted in one, or at most in two generations. Cutting at a rate many times in excess of the current annual growth has developed a migratory industry.

The "cut-out and get-out" system of harvesting forest resources means liquidation of lumber and logging companies, vanishing pay rolls, dwindling dependent industries, poverty-stricken dependent agriculture, and curtailment of transportation facilities. The community economy breaks down. Tax revenues fail, bonds become default, and social disintegration rapidly develops. Homes are abandoned and the population moves to some undeveloped field. This system of timber exploitation, "wilderness—boom town—ghost town", has been repeated wherever timber production has been an important factor in the industrial life.

It is entirely practicable and possible, however, for communities dependent on forest resources to attain raw-material-resource stability comparable to that enjoyed by agricultural communities close to large centers of population. But permanent stability can only be insured by annually harvesting a forest crop on the area tributary to any one center, equal to the quantity of timber grown on the entire area the same year. The annual growth on the average for the entire area must replace the quantity of timber cut. Sustained-yield forest management has as one major objective the maintenance of permanent

communities by securing an annual production adjusted to annual growth, or the sustained-yield capacity of the land.

Sustained-Yield Management in Northwest

Natural conditions in the Pacific Northwest are extremely favorable to the sustained-yield management of forest crops. Initial growing stocks are still available in many locations. The annual rate of growth is very rapid and yields per acre are large. The territory required to yield sufficient timber on a sustained-yield basis to maintain a prosperous community unit here is relatively small as compared with other sections of the country. The tree species are aggressive in reestablishing themselves after lumbering, where proper cutting methods are used. Adequate fire protection can be secured at reasonable cost. Douglas fir, the principal tree species, is very resistant to both insect and disease attacks. The simplest form of management can be practiced in most of the territory without impairment of the productive capacity of the soil or decrease of the annual growth rate per acre.

With the exception of a few communities dependent upon national-forest sustained-yield units, practically none of the logging and milling industry of the Pacific Northwest is now on a sustained-yield basis.

The State of Washington ranks first in amount of timber cut, with Oregon second, the combined normal annual cut being about 10½ billion feet. It is estimated that approximately 65 percent of the pay rolls depend on the lumber industry. The indirect contribution in sustaining the railroad and other public facilities, as well as agricultural development, materially increases this amount. The community prosperity in both States is directly related to the lumber cut. A low cut indicates a depression.

On account of the location of large timbered areas within a reasonable rail haul of cheap water transportation, manufacturing facilities are concentrated and are the basis of the prosperity of the larger towns and cities, favorably located with respect to export markets and transcontinental railroads.

Cutting in Washington and Oregon has been largely confined to areas tributary to good transportation facilities, especially to the Puget Sound and Columbia River territory where the quality of the timber is high. The original supply of timber was so large that highly industrialized and stable communities dependent upon this resource were developed. The sawmill industry utilizes chiefly old-growth Douglas fir, spruce, and cedar, and the cutting of stands of mixed species has resulted in a waste of usable material estimated at 2½ billion feet annually. With the exhaustion of this particular class of material, it is generally recognized important changes will occur.

The original stand of privately owned coniferous timber in the Douglas fir area in Washington may be roughly placed at 450 billion feet. The resource survey recently completed by the Forest Service places the remaining quantity of private timber in this State at 123 billion feet, or about 27 percent of the original stand. There is 121 billion feet, in some type of public ownership, State or Federal. It is significant, however, that out of the total of 244 billion feet only 101 billion feet of old-growth Douglas fir, spruce, and cedar is left uncut. With a normal annual cut of some 6 billion feet, it is plain that the supply of material which is the basis for the present sawmill industry is not inexhaustible. The supply of pulp timber

still available is relatively in a much more favorable situation. Since the use of a thousand board feet of timber in the making of pulp and paper products utilizes the services of 5 men as compared with 1 man in the sawmill industry, the development of this phase of the industry may greatly prolong the life of the communities dependent upon forest resources. The possibility for sustained-yield units based on a production of lumber is greatly restricted by the cut-out condition of the original stands.

Conditions in Oregon

While certain sections of Oregon are in a condition comparable to Washington, there still remain large areas where sustained-yield units can be established. Agricultural lands are favorably located with respect to these forest areas. Some existing communities can be expanded and a permanent ideal combination of industrial and agricultural development attained. In some areas possibly new communities may be required. With approximately 28 percent of the remaining timber stand of the United States located in Oregon, considerable expansion is inevitable there. Each industrial center would include sufficient forest area to furnish the estimated annual supply of forest products. Permanent towns with better living conditions would be justified.

The choice when the vast timber stands of Oregon are exploited on a large scale, will be between a financially sound development which will sustain permanently a considerable population and a relatively high standard of living, or the exploitation of the timber resource on a boom basis with a flush period of prosperity followed by financial and social wreckage.

F. H. Brundage, *Forest Service.*

COMPOSTS Are Good Means of Improving Soil of Small Farms

Composts offer a practical means of maintaining the soil fertility which is the most important factor in the successful operation of a subsistence farm.

The subsistence farm is usually small in area, which implies the necessity of having every square foot of it as fertile as possible in order to obtain maximum crops. Where there is an ample labor supply in the family, the preparation of composts and the securing of material for them may well be worked into periods which would not otherwise be fully employed.

There is need here for intensive gardening, and the basis of building up the soil for this purpose is in most cases an adequate supply of humus. Because the area is too small to permit profitable use of green-manure crops, the homestead farmer must rely on manure and composts. As the question of cash involved is also important, it is advisable so far as possible to utilize materials which are at hand or easily secured. In most cases these materials have no cash value, but when properly composted contribute to the building up of the soil and bring increased crop yields.

There are available on practically all farms and gardens many materials which are useful for composts, although the farmer or gardener often fails to appreciate their value. Some of the common materials which are often wasted are leaves, straw, muck, vegetable tops, grass

clippings, and garbage material which is inedible for chickens or pigs. Where stock is kept, the manure from the cows, chickens, and pigs may well be worked into the compost heap, because, unless something of this character is put in, fertilizer chemicals will be needed to break down the compost, and these require an outlay of cash. With this in mind, the treatment of the farm animals may be modified to give greater amounts of material for composts. Larger amounts of bedding than are absolutely required may be used, and the use of superphosphate as a part of the absorbent of the manure is helpful. Superphosphate not only acts as a preservative of the nitrogen in the manure, but also builds up the phosphoric acid content of the mixture, and ultimately that of the compost.

Methods of Making Composts

There are a number of methods of making composts and the one chosen will depend on the materials available, the location, and the time which can be allowed for the compost to mature. An ordinary pile of leaves without treatment, if kept moist, will ultimately break down into humus, as in the case of forest litter and forest soils. Although this process may take several years in a forest, the breaking down of the compost may be hastened by methods which also improve its character. A small amount of lime added to the compost materials, together with a little manure, will speed up the breaking down of the inert material. The greater the amount of manure which may be put in, the better. If manure is not available, fertilizer chemicals may be added. These may be either a complete fertilizer mixture, high in nitrogen, such as one containing 7 percent nitrogen, 6 percent phosphoric acid, and 5 percent potash, or the separate materials may be added. A mixture recommended by the New York Agricultural Experiment Station at Geneva, N. Y., is sulphate of ammonia, 60 pounds; ground limestone, 50 pounds; superphosphate, 30 pounds; muriate of potash, 25 pounds; total, 165 pounds. This is sufficient to mix with a ton of straw or other waste material.

The straw or organic matter is spread out in 6-inch layers and treated layer by layer with the chemicals until the pile is 4 feet high. Each layer is wet as placed, and finally the pile is kept moist as decomposition occurs. In the warm part of the year decomposition may be thoroughly completed within 3 months. Other satisfactory mixtures are recommended by Missouri, Iowa, and other State experiment stations. Use of the mixtures recommended by the nearest experiment station is advised. In making up a compost pile it is customary to have the pile 5 or 6 feet wide and at least 4 feet high, with the length corresponding to the amount of material available. In this way the ideal condition of allowing the pile to be damp and not wet will usually operate in humid climates. It is not advisable to apply so much moisture that it runs through the pile as this will leach out soluble fertilizer compounds. On the other hand, if the compost is too dry, proper decomposition will not take place. In some cases it has been found convenient to make the compost in a concrete-lined pit or on a concrete floor. Where running water is available in ample amounts, a covered pit may be used effectively, as the moisture can be controlled under these conditions. However, the compost pile may be on the ground without any other protection than proper care in

seeing that the sides are more or less vertical and that the top is depressed in the center to hold the water.

When the compost is thoroughly broken down into a homogeneous mixture, and no undecomposed leaves or other material may be seen, it is ready for use. It may be broadcast and worked into the entire topsoil, if large enough amounts are available. With smaller amounts it is often better to put it in individual hills.

The use of composts will vary somewhat with the soils involved. They are very necessary in sandy soils and are also efficient in improving the mechanical condition of clay soils. On good loams, and on peaty soils, they are not so necessary, though useful. They are a substitutue for manure, when manure is not available, and extend the use of manure when small amounts are on hand. In fact, a mixture of manure and compost is almost as good as manure and will cover a much larger area. Composts also save part of the expense of chemical fertilizers and so improve the soil that the fertilizers give more efficient results.

Table 2 gives the analyses of some of the common materials which may be put into composts:

TABLE 2.—*Percentage composition of some standard commercial fertilizing materials and other materials*

PERCENTAGE COMPOSITION OF VARIOUS FERTILIZING AGENTS

Material	Nitrogen	Phosphoric acid	Potash
Ammonium sulphate	19.0–20.5		
Calcium cyanamid	19.0–22.0		
Nitrate of soda	15.5–16.25		
Urea	46.0		
Superphosphate		16.0–20.0	
Treble superphosphate		44.0	
Ammonium phosphate	13.0	46.0	
Raw ground phosphate rock		26.0–35.0	
Ground bone (raw)	2.5– 4.5	20.0–25.0	
Steamed bone meal	2.5	23.0	
Potassium sulphate			48.0–52.0
Potassium chloride (muriate)			48.0–60.0

PERCENTAGE COMPOSITION OF VARIOUS MATERIALS

Apple leaves	1.0	0.15	0.35
Apple pomace	.20	.02	.15
Banana skins (ash)		3.25	41.76
Cantaloup rinds (ash)		9.77	12.21
Castor bean pomace	5.0– 6.0	2.0– 2.5	1.0– 1.25
Cattail reed and stems of waterlily	2.02	.81	3.43
Coal ash (anthracite)		.1– .15	.1– .15
Coal ash (bituminous)		.4– .5	.4– .5
Coffee grounds	2.08	.32	.28
Corncob ash			50.00
Corn (green forage)	.30	.13	.33
Crabgrass (green)	.66	.19	.71
Duck manure (fresh)	1.12	1.44	.49
Eggs	2.25	.40	.15
Eggshells	1.19	.38	.14
Feathers	15.30		
Fish scrap (fresh)	2.0– 7.5	1.5– 6	
Grapefruit skins (ash)		3.58	30.60
Lemon culls (California)	.15	.06	.26
Oak leaves	.80	.35	.15
Orange culls	.20	.13	.21
Peanut shells	.80	.15	.50
Peat	.5– 4.00		
Pigeon manure (fresh)	4.19	2.24	1.41
Pigweed, rough	.60	.16	
Pine needles	.46	.12	.03
Potatoes, leaves and stalks	.60	.15	.45
Ragweed, great	.76	.26	
Salt-marsh hay	1.10	.25	.75
Sewage sludge from filter beds	.74	.33	.24

TABLE 2.—*Percentage composition of some standard commerical fertilizing materials and other materials*—Continued

PERCENTAGE COMPOSITION OF VARIOUS MATERIALS—Continued

Material	Nitrogen	Phosphoric acid	Potash
Soot from chimney flues	0. 5–11	1. 05	0. 35
Stringbean strings and stems (ash)		4. 99	18. 03
Sweetpotato skins, boiled (ash)		3. 29	13. 89
Tea grounds	4. 15	. 62	. 40
Tobacco leaves	4. 00	. 50	6. 00
Tobacco stalks	3. 70	. 65	4. 50
Tobacco stems	2. 50	. 90	7. 00
Tomato leaves	. 35	. 10	. 40
Wheat straw	. 50	. 15	. 60
Wood ashes (leached)		1. 0– 1. 5	1. 0– 3
Wood ashes (unleached)		1. 0– 2	4. 0–10

FERTILITY CONSTITUENTS (PERCENT) IN DIFFERENT KINDS OF MANURE

Kind	Water	Nitrogen	Phosphoric acid	Potash
Sheep	59. 52	0. 768	0. 391	0. 591
Hog	74. 13	. 840	. 390	. 320
Cow	75. 25	. 426	. 290	. 440
Horse	48. 69	. 490	. 260	. 480
Hen	56. 00	0. 8–2. 00	0. 5–2. 00	0. 8– . 9
Rabbit	31. 4	1. 4	1. 8	. 5

The use of composts is one of the safest and most economical methods of building up soil productivity in small areas. This is shown by the fact that their use is world-wide and dates back many centuries. The agriculture of China, in spite of outstanding faults, has been kept going for centuries essentially by the proper use of composts. In almost any location there are materials available for the hauling which make useful soil amendments. This is especially true if the landholder is located near an industrial area or any large city.

C. C. FLETCHER, *Bureau of Chemistry and Soils.*

COSMETICS Mostly Harmless But Sometimes Not, Tests by United States Chemists Show

Women have used cosmetics since the beginning of time and will continue to do so. Officials of the Food and Drug Administration have no concern with that. The food and drug enforcement officer does have a real grievance, however, when a tragedy occurs and lasting damage is done by the use of the rare cosmetic which is dangerous and he finds himself accused of callous disregard of human welfare in not having taken proper legal steps under the law to prevent the disaster. His grief, however, is mild compared with that of the victim of the occasionally dangerous article.

The truth, of course, is that there is no national law governing traffic in cosmetics. The present Federal Food and Drugs Act does not deal with these articles. The Food and Drug Administration has had occasion, however, to investigate a number of beauty preparations because they were sold not only as cosmetics; their labeling also bore claims of a medicinal character. When they bear such representations in their labeling, they become drugs within the meaning of the law and are subject to its provisions. The Administration has also had occa-

sion to investigate a number of cosmetics to provide information to a congressional committee which, during the past session of Congress, considered revising the Food and Drugs Act to include cosmetics within its scope. Based upon the results of this investigation the Administration, through the proper official channels, recommended to Congress that the Food and Drugs Act be amended so as to prevent the sale of poisonous cosmetics and to require that claims made in the labeling and advertising of beauty preparations be truthful.

There is no doubt that most cosmetics are harmless. The fact remains, however, that there are on the market some beauty preparations which defeat their purpose by robbing their users of both beauty and health.

Dangerous Eyelash Color

Lash-Lure is distributed throughout the United States for coloring eyelashes. Soon after its appearance on the market reports of severe injury were published in various medical journals. In Dayton, Ohio, a prominent club woman was made totally blind as a result of a single application by a beauty-parlor operator of this highly poisonous cosmetic. Analysis of the product showed that it contained an aniline dye which is extremely corrosive and capable of burning away the outer coating of the eye. Since the Food and Drugs Act does not prevent the sale of dangerous cosmetics, nothing could be done to stop the sale of the product except to issue press notices calling attention to the danger inherent in the use of this product.

Preparations for the removal of superfluous hair are not ordinarily extremely dangerous. Most of them contain corrosive sulphide salts. These same chemicals are sometimes used in the removal of hair from hides to be tanned. It is a scientific fact that anything corrosive enough to dissolve the hair is quite likely to be strong enough to damage the skin. Many cases of severe injury to the skin frequently followed by infections have been reported to be due to the use of these depilatories.

A more dangerous type of depilatory agent was employed by a New York manufacturer in an article called "Koremlu," which sold for $1.10 a jar. The attractive package was merchandised to people all over the country. It was not until some months after its initial sale that reports of severe injury began to be received. The product contained thallium acetate, a substance well known as a rat poison but for which there is no known antidote. It has the comparatively rare property of being absorbed through the skin. The case of a woman 30 years old who went to the Mayo Clinic, Rochester, Minn., suffering from impaired vision is typical of the ill effects brought about through the use of this cosmetic. She complained of aching and general soreness of all the muscles in her body along with general weakness. Later, other distressing symptoms appeared which kept her in bed about 2 weeks. Finally her aching progressed toward numbness and her eyesight was more seriously impaired. The serious poisonings reported as a result of the use of this product number several hundred. The firm finally discontinued business because of the many damage suits filed against it.

Lead acetate is another dangerous poison sometimes found in cosmetics, more particularly in hair dyes. The application of preparations containing lead may cause local injury to the skin and scalp. Lead is absorbed slowly but tends to accumulate in the system. The

result may be chronic lead poisoning with symptoms such as malnutrition, anemia, painful joints, sore gums, defective vision, and sometimes even more serious symptoms.

Arsenic has been found to be an ingredient of some hair tonics. The dangers of its continued use are too great to make it wise to offer it in cosmetic preparations.

Mercury Salt in Freckle Creams

Freckle creams and skin bleaches are frequently found to contain a mercury salt. While this substance is entirely capable of lightening the color of the skin, the dangers inherent in its use are great indeed. It may cause acute eruption of the skin. Its continued use over a period of years is entirely capable of producing chronic mercury poisoning, since the skin readily absorbs this substance. The absorbed mercury may damage the kidneys and ulcerate the mouth and gums and cause other serious injury.

In the case of those substances which cause chronic poisoning after prolonged use for a number of years, the person using the cosmetic seldom associates her disease condition with the use of the cosmetic. This is because the injury occurs a long time after she started its use and also because the injury may manifest itself in some entirely different part of the body than that to which the cosmetic was applied.

Fat-reducing preparations are perhaps not ordinarily considered in the category of cosmetics, but since they are consumed so widely for the purpose of improving the personal appearance they can logically be discussed here. The most commonly sold antifat preparations can be classified roughly in three groups. In the first group are those which produce their effect by starvation. In this category fall those preparations which contain nothing but wholesome food substances pleasantly flavored but which usually are sold in small containers for a dollar or more. The directions ordinarily accompanying articles of this sort instruct the user to dispense with breakfast and lunch and replace these meals with a glass of liquid made by dissolving a teaspoonful or so of the product in a glass of water. Obviously if a person decreases the food consumed, a reduction in weight will almost inevitably result.

The second group of fat-reducing products includes those which contain powerful laxative drugs. They may have some limited fat-reducing action by rushing the food through the body so rapidly that it does not have an opportunity to be digested and absorbed. The continued use of purgative drugs is not calculated to improve the health of the user. On the contrary, serious injury may result.

Thyroid Extract in Some Reducing Drugs

The third group of weight-reducing products includes those which stimulate the fat-burning properties of the body to the point where an actual utilization of the fatty tissue is brought about. Drugs in this class include thyroid extract, and a more recently exploited substance, dinitrophenol. These substances are extremely dangerous and have caused a great deal of serious harm. They should never be used except under the direction of a competent physician who carefully observes their effect.

Since the Federal Food and Drugs Act does not now have jurisdiction over products of this type, dangerous though they may be, all that the Food and Drug Administration can do at present is to warn the public that they are dangerous.

GEORGE P. LARRICK, *Food and Drug Administration.*

CREDIT Facilities for Agriculture Greatly Improved by New Laws

As a result of the break-down of the usual credit sources and of the intensification of adverse economic conditions, the credit problems of agriculture had become extremely acute even prior to the banking holiday of 1933. To bring about an improvement, a unified and comprehensive Federal credit system for agriculture was put into operation. This brought about a substantial expansion in the lending activities of the Federal land banks and of the Federal intermediate credit banks. Two groups of new lending institutions were established to meet the agricultural needs for production credit and for credit for cooperative associations. Refunding of maturing loans on a long-term amortized basis at lower rates of interest, and efforts devoted to debt conciliation and adjustment, enabled large numbers of farmers to retain farm ownership and to reduce their annual fixed charges for interest.

In the 3-year period prior to the banking holiday the number of farm foreclosures increased at an alarming rate, and forced a sharp reduction in the total of outstanding farm-mortgage loans. The number of forced sales per 1,000 farms, excluding sales for delinquent taxes, increased from 15.7 in the year ending March 15, 1930, to 28.4 in 1932 and 38.8 in 1933. These sales represented not only foreclosures but a large proportion of sales in which the ownership of farms was transferred to creditors for the purpose of escaping the burden of an excessive indebtedness.

These conditions indicated clearly the necessity of more adequate credit facilities to arrest the wave of foreclosures. Legislation, therefore, was enacted which enabled the Federal land banks and the Land Bank Commissioner to make loans for the refinancing of a large volume of the maturing indebtedness and to prevent the unwarranted loss of farms in those cases where the farmer with adequate financial accommodations, and in certain cases with some concessions from his creditors, could work out of his credit difficulties.

Advances Under Emergency Farm Mortgage Act

Under the new loan provisions of the Emergency Farm Mortgage Act of 1933, the Federal land banks advanced approximately $933,000,000 (May 1, 1933, to Feb. 28, 1935) on first farm-mortgage loans. Loans made by the Land Bank Commissioner, about one-half of which are supplementary advances to those made by the land banks, amounted to an additional $675,000,000, raising the total to $1,608,000,000. This amount, loaned to approximately 437,000 farmers, has been the means not only of saving farms from foreclosure but has also resulted in refinancing the farmers' indebtedness upon a sounder

long-term basis more in keeping with the debt-paying capacity of the individual farm.

Prior to the passage of the Emergency Farm Mortgage Act of 1933 probably not more than 25 percent of the total farm-mortgage debt was repayable on a long-term amortized basis. A large percentage of the farmers who had short-term mortgage loans falling due during the last few years found it difficult to obtain renewals because of the decline of land values and the generally disorganized economic conditions. Farmers who are refinancing their indebtedness under the new Federal program will hereafter not be confronted with the problem of loan renewals. The expense, as well as the uncertainty, involved in the frequent renewals of short-term mortgages also will be eliminated.

A further advantage of this refinancing program is a reduction in the interest paid by farmers on their mortgage indebtedness. For a 5-year period the interest rate on Federal land bank loans is reduced to 4½ percent per annum. A survey conducted by the Farm Credit Administration indicates that the average rate of interest paid on the indebtedness refinanced through Federal land bank and Land Bank Commissioner loans has been 6.4 percent. The new basis of financing, therefore, represents an annual saving of approximately one-fourth of the interest charges. The reduction in fixed charges through lower interest payments, together with the reduction in taxes that has taken place, should help materially to put the individual farmer on a stronger financial basis.

In addition to providing for these reductions in interest charges, the Emergency Farm Mortgage Act also made it possible for the Federal land banks to extend delinquent unpaid installments of loans at the request of borrowers during the 5-year period ending July 1938. Up to June 30, 1934, nearly $50,000,000 of unpaid balances of matured items, consisting mostly of interest and principal of installments and cash advances for taxes, had been extended. The Emergency Farm Mortgage Act also authorized the Federal land banks to defer until July 1938 the principal portion of maturing installments on loans in good standing. To relieve the Federal land banks of any burden from extensions and deferments granted, Congress authorized that extensions and deferments in force may be used by the banks as a basis for paid-in surplus claims from the United States Treasury.

Financing by Non-Federal Agencies

The volume of new mortgage loans made by non-Federal agencies has been relatively small and, with the repayment of loans refinanced through the Federal-sponsored agencies, the outstanding volume of loans held by private agencies has continued to decline. As a result of this fact and of the enlarged lending operations of the Federal land banks and the Land Bank Commissioner, the Farm Credit Administration has now become the most important agency holding farm-mortgage loans. As of August 15, 1934, they held approximately 30 percent of the total farm-mortgage debt compared with approximately 20 percent for life-insurance companies, formerly the largest owners of farm-mortgage loans.

Prior to the enactment of the new farm-credit legislation, the facilities available to farmers for short-term and intermediate credit had become seriously disrupted. The banking holiday of 1933 brought to a

culmination a series of bank suspensions which in every year since 1921 had impaired farm-credit facilities. In numerous communities no banking facilities whatsoever existed. In others, existing facilities were curtailed by declining bank deposits or by the desire of banks to maintain their assets in the form of liquid loans and securities purchased outside of their communities.

To fill in these gaps in the credit structure and to provide a stable source of credit for legitimate agricultural-credit requirements, a new system of production-credit associations was established. Farmers now have available in every section of the country a federally sponsored agency that can meet the needs for production credit on the basis of adequate security. More than 600 production-credit associations, covering every agricultural county in the country, have been established. Up to August 31, 1934, these agencies had advanced approximately $70,000,000 for production-credit purposes.

Nearly half the total was advanced to farmers in the cotton-growing States. Relatively large amounts were advanced to farmers in Maine, New York, Virginia, California, Montana, and Washington. These credit associations have been utilized extensively in areas where the cash outlays required in the production of crops are relatively high. A considerable volume of advances has been made in the cattle- and sheep-growing States, where local banking resources have usually not been sufficient. The volume of livestock loans made by these associations represents, in part, a shift of loans previously held by the regional agricultural credit corporations, which are now in the process of liquidation.

Strengthening of Local Banks

The functioning of these credit associations will provide not only a stable source of loanable funds for agricultural-production purposes but will also tend to strengthen the position of local banks in agricultural communities. This will be particularly true where outside funds are required seasonally. Where extensive advances have been made for agricultural-production purposes by local banks, years of low farm income frequently have made it difficult to obtain sufficient repayments of agricultural loans to keep the banks in a liquid condition. Bank resources have become tied up in temporarily slow assets. As a consequence of such adverse conditions, local banks frequently have not been able to meet legitimate demands for production credit.

Where it has been the practice for local banks to borrow extensively from banks in the larger cities and from the Federal Reserve banks to aid in the seasonal financing of agriculture, years of low farm income have made it difficult fully to repay such interbank advances. As a large proportion of the banks' assets were usually pledged as security for such advances, subsequent bank failure frequently left assets of only nominal value to secure depositors' claims. With the utilization of the new farm-credit associations, agricultural-credit needs can be met without putting a severe strain upon local credit resources. The fact that such a source of credit is available probably will make local lending agencies more willing to extend credit. If depositors exert an abnormal demand for deposits, loans made to farmers on a sound basis can be quickly realized upon by having the farmers refinance such loans through production-credit associations. These associations will therefore tend to give to sound agricultural paper a liquidity that has hitherto been lacking.

Credit for Cooperative Associations

Credit facilities for cooperative marketing associations have been greatly enlarged by setting up in each of the 12 Federal land bank districts a new institution known as a bank for cooperatives. In addition a central bank for cooperatives has been set up in Washington, D. C., to care for the credit requirements of the larger associations and for those associations operating more or less upon a national basis. From June 1, 1933, to March 1, 1935, the 12 district banks for cooperatives loaned $24,608,000, and the central bank for cooperatives advanced a total sum of $49,236,000. In part, these banks continue to extend the type of credit that was previously advanced out of the revolving fund of the Federal Farm Board. Lending facilities under the new set-up, however, are greatly enlarged. They now become available to all local cooperative organizations that can meet the requirements. Loans can be obtained either for working capital or to finance capital requirements.

Farm conditions in the last few years have led to the need of a special type of emergency financing, which the Federal Government supplied through crop-production and feed loans. Such loans were provided in 10 different years since 1921. As a result of the establishment of the production-credit associations, which provide a source of credit to those who can supply adequate security, and of the increase of farm income in 1933, the demand for such emergency crop loans was substantially reduced in 1934. The total number of crop-production loans made by the Farm Credit Administration in 1934 amounted to 377,964 (as of July 31) involving a total of $30,837,944 compared with 633,585 loans in 1933 involving a total of $57,376,040.

Difficulties which farmers have faced in their credit arrangements have been further ameliorated by various measures taken to encourage the refinancing and readjustment of the debt burden of those farmers who have been faced with the possible loss of their farms. To assist such farmers in obtaining an equitable adjustment of their debt obligations, voluntary conciliation committees have been set up in more than 2,400 agricultural counties. These committees, appointed by State authorities, have mediated between farmers and their creditors. Their objective has been to arrange for the voluntary settlement of debt difficulties, through an extension of the time of payment, a readjustment in the rate or method of payment, or a reduction in the total amount to be paid. Individual farmer's cases, involving over $200,000,000 of debts, have been handled by these committees. Such efforts have enabled a substantial number of debt-distressed farmers to retain farm ownership.

Amendment to Bankruptcy Act

The Bankruptcy Act was amended in 1933 to provide for the appointment of Federal conciliation commissioners to assist in bringing about an adjustment or a composition of the indebtedness of farmers who cannot meet their maturing obligations. These provisions have not been extensively utilized, but their existence has been a factor in bringing about voluntary agreements between creditors and debtors. The scope of the provisions was further enlarged in 1934 by an additional amendment providing for the compulsory appointment of a debt conciliation commissioner in each county.

Another amendment to the Bankruptcy Act in 1934 created a greater opportunity for farmers to retain farm ownership, in cases where a debt composition or adjustment has not been obtained through a voluntary conciliation committee or the mediation of a Federal conciliation commissioner. In the past the proportion of financially distressed farmers who have resorted to bankruptcy proceedings has been relatively small. The latest amendment to the Federal Bankruptcy Act may bring about some increase in farmer-bankruptcy cases. Because of other means of debt refinancing and adjustment, however, it is not expected that this increase will be significantly large. The existence of these bankruptcy privileges rather will tend to bring about an equitable readjustment of the farmer's debt obligations upon a voluntary basis, with or without the mediation of local conciliation committees or Federal conciliation commissioners.

NORMAN J. WALL, *Bureau of Agricultural Economics.*

CROP Adjustment Needed to Prevent Return to General Overproduction

The drought of 1934 did not really end the farmer's surplus problems. It could easily start them again. We still have a cotton carry-over of 8 million bales when we need only 5 million. We still have stocks of certain types of tobacco three times the normal. The wheat carry-over may be down close to normal by the end of the 1934–35 season, and the number of cattle may be brought close to normal; but the real surplus is not in these figures so quickly brought down by unprecedented drought.

The real surplus is in the acres that are available and which are certain to be put under the plow if no control program exists.

As has happened many times before, the relatively high prices due to drought and the satisfactory returns derived from the A. A. A. programs could lead us into such an expansion in wheat, corn, cotton, and later livestock as to put us in 1936–37 where we were in 1932 if 1935–36 weather were favorable.

More than ever we need a program of balance and restraint. We need to balance the production in the several branches of agriculture through a definite coordinated program. We need also to maintain a proper balance between agriculture and industry.

Capital not being used elsewhere is pressing to be put to use in wheat, corn, cotton, in which uses it would unbalance crops and livestock. Industrial money and unemployed men pressing upon the land easily create a general expansion in farming. Such expansion would call for the reenactment of the A. A. A. were it to pass out of the picture.

No Foreign Outlet for Wheat Surplus

In wheat we are not out of the shadow of surplus. Favorable weather for the 1935 crop would give a surplus of 150 million bushels, above the expected carry-over of about 155 million at the end of the 1934–35 crop season. No foreign outlet for this surplus is in sight.

Every year since 1920 we have planted between 60 and 70 million acres in wheat and in every one of these years, except the last two, average yields per acre planted have ranged between 11 to 15 bushels.

We can easily have a crop of 750 to 950 million bushels in 1935 or 1936 out of these possibilities; for without the A. A. A. at least 65 million acres would be planted for wheat to be harvested against 60 million in 1934. The prices that growers received during the past year and the recent trend in prices are more than ample to bring about a cycle of wheat expansion.

Generally it is not recognized that we have had cycles in wheat acreage nearly as pronounced as in cattle numbers. The latter run in cycles of about 14 to 16 years. In wheat we had an acreage peak around 1880, another in 1900, and a third in 1920. Without the A. A. A. we should start on the road to still another peak in wheat production by 1940.

Factors making for a future surplus if the A. A. A. does not exercise guidance are (1) the returns given by the A. A. A.; (2) moneyed people eager to finance wheat production without seeing the end of the road; and (3) the millions of unemployed who will be enticed onto the land.

All of last year's corn acreage plus 10 to 15 million more acres would be planted in 1935 if the Corn Belt went back to individual action without regard to the consequences.

Difficulty of Using Large Corn Crop

Bearing in mind that the 1934 feed supply and prices, and the A. A. A. program, have greatly reduced the number of hogs and cattle, what would producers do with a good-sized corn crop in 1935? Without the A. A. A. to help them, they would not be able to store the surplus as they were able to do in the past season.

Hence, we would revive the livestock cycle. Low feed prices in 1935–36 would stimulate the production of hogs, cattle, dairy products, as low feed prices have always done. The tugging and pulling between the grain and livestock producers would begin again.

It takes a price of only a little over 10 cents per pound for cotton to start acreage expansion. Under ordinary conditions the 15 to 16 cents which the cotton growers are getting from sales and benefit payments would put 4 to 5 million acres back into cotton. But now that they have reduced acreage for two seasons, twice that amount might be added to 28 million acres planted in 1934, making nearly 40 million acres and a potential addition to the 10-million-bale carry-over to its 1932 magnitude.

Thus farmers must beware of the pressure of the unemployed onto the land and of the flow of unused industrial capital into wheat and corn expansion. These movements tend to cause a new production cycle. Farmers must also have protection against the short-sighted in their own ranks, who judge the future by the unstable present. As much as ever they need insurance against weather conditions through a system of stabilized production supported by the storage of surpluses under loan and seal. The country would thus be assured of a constantly adequate supply of food and clothing materials, and the resulting stability in farm prices and income would contribute to general economic stability. The agricultural adjustment program, soundly carried out, can give that stability, protection, and insurance.

Louis H. Bean, *Agricultural Adjustment Administration.*

DAIRY-HERD Improvement Facilitated by Testing Cows Year After Year

In dairy herd improvement association work the expression, "continuous testing", means the keeping of yearly production, feed, feed-cost, and income records of each cow in the herd, year after year. The cost of keeping such records is generally about $3 a year per cow, the cost varying somewhat according to the size of the herd and the pay of the tester. A large percentage of the association members find that it pays well to keep their herds continuously on test.

Dairy herd improvement, through herd-improvement associations, is brought about almost altogether through selection, feeding, and breeding. Records are kept to cover all three purposes. Discontinuance of the work for a single year interferes greatly with selection and feeding and practically blocks the breeding work insofar as the proving of bulls by means of lactation records is concerned. Dairy cows vary greatly in production from year to year due to age, condition, length of lactation, season of freshening, and other causes. For that reason it is not advisable to feed a cow in any one year according to a previous year's production record.

Records of Both Milk and Butterfat Needed

On an average, about 20 percent of the cows on test are replaced each year. That means that in a herd of 20 cows there will be about 4 new cows each year on which there are no production records, either of milk or butterfat. Of course, it is possible for the owner to weigh the milk himself and to feed concentrates according to milk production regardless of the butterfat test, but if the milk of these new cows varies in butterfat content from 3 to 5 percent, the feeding of concentrates according to milk weights only is, at best, a very crude procedure.

Suppose the yearly milk production of the new cows in the herd varies all the way from 5,000 to 7,000 pounds. It is easily possible that the cow producing 5,000 pounds of milk may be producing as much or even more butterfat than the cow whose yearly milk production is 7,000 pounds. In such circumstances milk weights alone are unsatisfactory as a guide in feeding or as a basis for selecting the cows to keep and the ones to be discarded.

There are on file in the Bureau of Dairy Industry many stories of new dairy herd-improvement association members who report that the cow they thought was the best turned out to be the poorest producer in the herd. A number of farmers, before they joined a dairy herd-improvement association, were induced to estimate the yearly milk and butterfat production of each cow in their herds. The error of estimate for individual cow records varied all the way from 1 percent to as high as 60 percent, the average error being 25 percent in milk production and 28 percent in butterfat production. Such estimates are not exact enough either for feeding purposes or for the purpose of selection.

Continuous Testing Has Numerous Advantages

For the purpose of feeding and selection, testing every other year or every third year is better than not testing at all, but it removes only a part of the guesswork.

Most important of all reasons for continuous testing is the fact that production records of dams and their daughters are compared to prove the breeding value of the sire of the daughters. When dam-and-daughter comparisons are made on the basis of production during the 12 months of the association testing year, the work of proving bulls is much delayed if the testing is not continued year after year and in many cases the bulls cannot be proved at all. And when it comes to proving bulls by comparing the lactation-period records of the dams and daughters, the work will be completely blocked if testing is not continuous. Most of the lactation periods cover parts of 2 years; and if testing is discontinued during one of these years, few if any dairy sires can be proved by lactation-period records, or by means of any kind of records. Since the proving of dairy bulls has, in recent years, become such an important part of the dairy herd-improvement association work, the value of continuous testing cannot be emphasized too strongly.

But some dairyman may say: "I am not interested in proving sires. I think I am doing pretty well when I keep a registered bull to head my herd." Let us consider the records of two registered bulls. One registered bull whose records are on file in the Bureau was mated to 11 cows whose average yearly butterfat production was 466 pounds. The average butterfat production of the 11 daughters, all sired by this registered dairy bull, was 279 pounds. Here was a drop in one generation from 466 pounds of butterfat to 279 pounds. Certainly it paid the owner to discover what the bull was doing in the way of decreasing production before he had done any more damage. Another registered bull of the same breed, but in another herd raised butterfat production from 323 pounds to 508 pounds. This information was also of great value in measuring the improvement due to the use of this registered bull.

Dozens of similar comparisons could be made from the records on file. The sooner such bulls are proved the better. In one case the records showed that the registered bull had already ruined the production of one generation of the herd. The dam-and-daughter records have sealed his doom. In the other case the records have proved the breeding value of an excellent registered bull. Surely no dairyman can afford to take chances when he has so much at stake.

Wise Use of Records Improves Herds

Not every herd on test shows improvement every year, yet the history of the dairy herd-improvement association work since its beginning has been highly satisfactory. The work began in Newaygo County, Mich., in 1906. The average butterfat production of the cows on test that year was 215 pounds. Every year since then for which summaries have been made has shown an increased production per cow. For the year 1933 the average butterfat production of the cows on test was 313 pounds or 98 pounds more per cow than for the first association the first year. This production per cow is about 90 percent more than the average production of the milk cows of this country. Dairy herd-improvement association work does not result in overproduction of milk and butterfat if testing is accompanied by a close culling out of low and unprofitable producers. Table 3 shows the results that come from an intelligent use of dairy herd-improvement association records.

TABLE 3.—*One herd on test for 3 successive years*

Year	Cows	Milk per cow	Milk price per gallon	Gross income per cow	Cost of feed per cow	Income over cost of feed per cow	Total income over cost of feed for herd	Total feed bill	Total milk produced by herd
	Number	*Pounds*	*Cents*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Pounds*
1	23	4,680	0.20	109	96	13	299	2,208	107,640
2	15	6,750	.20	157	121	36	540	1,815	101,250
3	11	7,359	.20	171	129	42	464	1,419	80,949

Here we have a record of a herd that was on test for 3 successive years. Culling out the low producers had reduced the herd from 23 to 11 cows by the third year. It cost more per cow to feed the 11 cows than the 23 but the total feed bill was $789 less. By milking fewer but better cows in the third year the owner not only placed 26,691 pounds less milk on the market, but increased the total income over cost of feed from the herd by $165. It not only paid the owner of this herd to test continuously but it paid him big returns to study the individual records of his cows.

On January 1, 1934, there were 793 dairy herd-improvement associations in active operation. Doubtless these would nearly all die out in a short time if the testing of the herds were not continuous. As a rule, the owners of the poorest herds are the most likely to drop out of the association. Yet they are the ones that need it most. The wisest members continue year after year, because they have found that continuous testing pays.

J. C. MCDOWELL, *Bureau of Dairy Industry.*

DEPLETED Ground Water May be Replenished by Artificial Spreading

It is a noteworthy fact that during the serious droughts and resultant crop losses of recent years the areas that depended wholly or in part on irrigation suffered relatively little in comparison with the drought-stricken regions generally. Indeed, only in extremely limited irrigation sections has any distress resulting from crop failures been felt by the farmers. Most irrigated crops have matured before there was any material shortage of water. This condition was especially marked in districts getting their irrigation supplies from underground sources. Practically all of such areas have come through the drought periods with little or no loss resulting from crop failures.

Naturally, however, the current series of years of low precipitation has been accompanied by an overdraft of surface-reservoir storage supplies and by a corresponding depletion of underground supplies. Furthermore, during the same period there has been a notable increase in the extent of irrigated agricultural areas served by underground water. Consequently, these two factors—decreased natural recharging and increased draft of the supply—occurring simultaneously, have tended to create a serious menace against future assurance of dependability on underground storage.

A survey of areas where water is pumped from underground supplies as the principal source for irrigation use shows a generally constant lowering of the surface of the water table. The situation is naturally

more serious in some localities than in others since some underground storage reservoirs are larger, and consequently are depleted more slowly than others; and, on the other hand, some have less favorable recharging possibilities and consequently respond more slowly to recharging either natural or artificial.

It seems certain that in any area dependent upon pumped water for either domestic, irrigation, or industrial use the recharging of the underground supply can be stimulated by artificial methods. This has been found to be true in areas that have been studied in Arizona, California, Oregon, Texas, Utah, and Washington.

There are several different methods that may be employed in effecting replenishment of ground-water supplies. In this connection it should be noted that one of the most important sources of loss of surface-water supplies lies in the seepage that takes place, sometimes very rapidly, during the conveyance and storage stages, and in deep percolation of much of the irrigation water applied to cropped lands. This loss, however, while decreasing the gravity supply, constitutes a material factor in the recharging of the ground-water supply. Similar replenishment may be effected artificially by fall and winter irrigation, involving the use of the canals practically throughout the entire year, by diverting small streams from their natural channels and "spreading" the water over absorptive areas, or by utilizing shafts and wells sunk to suitable gravel deposits. Local conditions and legal requirements must, of course, be complied with, and precautions against the washing or leaching away of soil fertility should always be taken, whatever the method employed.

Southern California furnishes the best examples of well-developed spreading systems. In that locality the recent years of subnormal precipitation have naturally been associated with an accumulated drop in the major ground-water levels, which had already become seriously lowered. Consequently, the State, the counties and other political subdivisions, and even conservation associations have been aided by the Federal Government in extending several hundredfold the works and facilities for conserving and spreading the flood waters discharged by streams of intermittent flow.

On the Santa Ana and Lytle Creek cones, several hundred miles of spreading canals, large and small, have been built in highly porous materials. On Cucamonga, Devils, and San Antonio Creeks retention dams and basins have been provided and extensive systems of canals have been constructed over absorptive areas.

During this period of development the United States Department of Agriculture, through its Bureau of Agricultural Engineering, has been cooperating with the local more directly interested agencies in developing research data concerning rates of percolation in different types of soil surface, the relative advantages and disadvantages of various spreading systems, the differences in percolation factors of areas denuded of vegetation and those of areas still bearing their native growths, the effects of fluctuating water tables, and other important factors.

Water spreading is no longer an experiment; under suitable geologic, topographic, and water-supply conditions it often is the most profitable investment in water conservation that a community can make.

A. T. Mitchelson, *Bureau of Agricultural Engineering.*

Downy Mildew of Hops Causing Serious Damage; Control Studies Under Way

Hops have been grown in many States, but the crop has for years been localized in sections of Oregon, California, and Washington (fig. 15). In 1890 approximately one-half of the 40,000,000 pounds produced in the United States came from New York. Thereafter the production in that State declined steadily, and since 1920 it has been commercially unimportant. About 32,000 acres of hops were grown in the Pacific Coast States in 1934, the production amounting to approximately 35,000,000 pounds with an estimated value of about $10,000,000.

FIGURE 15.—Typical view of a hop field in Oregon at harvest time.

Growers have many problems in connection with the growing and marketing of this crop. At present the most important of these concern (1) the quality of hops produced and their comparison with those of foreign production, and (2) the control of the very serious disease known as downy mildew, which often causes heavy losses.

Studies on Quality of Hops

Hops impart to beer a characteristic flavor and bitterness, depending largely on the quantity of certain constituents present in the hops, of which the resins are of special importance. The soft resins impart the desired flavor to beer, the hard resins having practically no brewing value. It is important, therefore, that all commercial practices be conducted, so far as possible, with a view toward maintaining the quantity and quality of the soft resins. Any progress made in this direction by the growers and those who subsequently handle and store the hops should permit the industry to meet more effectively the competition of foreign hops.

To encourage concerted efforts and to provide the necessary background of information the Bureau of Plant Industry, through its Divi-

sion of Drug and Related Plants and in cooperation with growers and dealers, has undertaken an investigation of the various practices involved, to determine the relationship of prevailing methods to the quality of hops and to recommend practicable modifications likely to result in a more uniform and better quality. Attention is given to the influence of fertilizers, stage of picking, methods of drying and baling, and conditions of storage, as determined by chemical analysis of the hops produced under various controlled conditions.

Studies on the Downy Mildew

Downy mildew is a fungus disease that has been prevalent in European hop fields since 1920. In this country it was observed on wild hops in Wisconsin as early as 1909. In 1928 it appeared on cultivated

FIGURE 16.—Effect of downy mildew on new growth of the hop plant. At the right, normal young vines; at the left, typical "spikes" caused by the disease.

hops in New York and in British Columbia, where a severe outbreak occurred. It was not recognized in Washington until the following year, but in 1930 it appeared in many of the fields in both Washington and Oregon and since then has been the most serious problem of the growers in both States. In the spring of 1934 the first outbreak occurred in California, where it appeared in the coast counties. The spread of the disease and its virulence depend on climatic conditions; cool, humid weather favoring its development. In the Sacramento Valley in California and in the Yakima district in Washington, where hot, dry weather generally prevails during the growing season, the disease may not become established or do serious damage, but in the other hop-growing districts vigorous control measures must be adopted to avoid excessive losses.

The disease attacks all the aboveground parts of the hop plant. It is characterized by two types of spores: (1) Conidia or summer spores,

which are capable of spreading the disease at an alarming rate during the growing season if conditions are favorable for the disease, and (2) oospores or winter spores, which are thought to be the chief means of carrying the disease over from year to year. Most of the damage is caused by the effects of the disease on the young vines that develop from the crowns in the spring. These are stunted, causing the so-called "spikes", which prevent the vines from producing a crop (fig. 16). Under favorable conditions the disease also attacks the hop cones in the late summer and causes a direct loss by lowering the quality of the product. Entire fields are in some cases destroyed, while in others the damage is frequently sufficient to deprive the grower of all profit from his crop.

Problem Approached in Two Ways

In 1930 the Bureau of Plant Industry in cooperation with the Oregon Agricultural College undertook an investigation of the disease to assist growers in combating its effects. The problem was approached in two ways: (1) To provide practical control measures in the hop fields, and (2) to develop new varieties resistant to the disease. The first includes studies of the behavior of the disease, its propagation, and the conditions that determine its spread and virulence, also the formulation of methods of control by means of sprays and dusts and of practical cultural methods that minimize its spread. Information of this kind is constantly being brought to the attention of growers in order to provide immediate assistance. The second line of investigation cannot give immediate practical results but seeks rather to provide new commercially useful varieties partly or fully resistant to the disease to replace in the future those now grown and which are especially subject to attack.

A. F. Sievers and Frank Rabak,
Bureau of Plant Industry.

Dried Skim Milk Added to Other Foods Improves Their Nutritive Value

The manufacture of dried skim milk is one of the more recent developments of the dairy industry. The past 15 years have been marked by a steady increase in the utilization of and demand for this product, and today it is manufactured to some extent in practically every State. Production has increased steadily from 41,893,000 pounds in 1920 to 288,114,000 pounds in 1933.

Process of Manufacture

To produce a dried skim milk of excellent quality only the best quality of skim milk can be used. Nothing is added to the skim milk prior to its desiccation, hence the product contains only the solids not fat, plus some milk fat and moisture, and the yield is about 8½ to 9 pounds of dried product per 100 pounds of skim milk.

One of the following processes is usually used in its manufacture.

Atmospheric roller process: Steam-heated drums are so arranged that partially condensed skim milk is spread in a thin layer on their outer surface. During the revolution of the drum the adhering film

of milk dries and is then scraped off. This dry film is reduced to a powder by revolving brushes or other grinding devices.

Vacuum drum process: This is really the roller process with the roller or drum enclosed in a chamber which is maintained at a partial vacuum during the drying operation, thus making it possible to dry skim milks at temperatures below their respective normal boiling points.

Spray process: The fluid skim milk, sometimes partially condensed, is sprayed into a current of heated air which removes the water and leaves the milk solids as a finely divided powder. Various devices are used to separate the powder from the moist air.

Flake process: Partially condensed whipped skim milk is spread on a wire belt which passes through a heated chamber wherein currents of hot air are directed against it. The dried product is removed from the belt in the form of flakes.

Nutritive Value of Dried Skim Milk

The approximate percentage composition of dried skim milk is as follows: Proteins 38, lactose 50, salts 8, fat 1, and moisture 3 percent, and it represents an energy value of over 1,800 calories per pound, which is greater than that of most foodstuffs, calculated on a similar basis.

An analysis of average whole milk indicates that the ratio of proteins to fat is approximately 1:1.08, while the ratio of sugar to fat is approximately 5:3.8. The relative biological caloric value of the constituents as foods would be as shown in table 7.

TABLE 7.—*Relative total caloric value of constituents in fluid whole milk*

	Parts per 100 parts milk	Heat of combustion calories per gram	Relative total caloric value	Approximate percentage of total
Fat	3.8	9	34.2	50+
Protein	3.5	4	14.0	50—
Sugar (lactose)	5.0	4	20.0	
Salts	.7			

These figures indicate that approximately one-half of the energy value of milk is contained in the solids not fat, or the skim milk.

Energy values alone, however, do not indicate the total value of the skim-milk solids. Foods are needed not only because they furnish energy but also because they furnish material with which tissues are repaired and new tissues are formed. The salts of milk which are found largely in the skim milk are especially valuable food constituents in this respect. Their readily assimilable calcium and phosphorous compounds furnish mineral constituents essential to development and proper growth. The proteins are readily digestible and assimilable and are more nutritive than those of most foodstuffs. The lactose, in addition to having a high caloric value, is especially beneficial in regulating the intestinal flora and seems also to be superior to other carbohydrates in some respects for the growth of young animals. Skim milk is an especially valuable human food also because of its vitamin G (B_2) content, and should, therefore, be a constituent

of the diet of all people in regions where pellagra is of frequent occurrence. It may also contain traces of vitamin D and even vitamin C.

From a consideration of the research work to date on the vitamin content of dried skim milk, it may be said that the approved processes of drying now used do not expose the product to high enough temperatures for a sufficient period of time to materially affect any of the vitamins except the antiscorbutic vitamin C. This vitamin is abundant in most vegetables and citrus fruits, which should be a part of every diet whether the milk used be a liquid or dried product. In the feeding of infants and children a milk diet should also be supplemented with sources of vitamin D, such as cod-liver oil and egg yolk, and the individuals should be subjected to direct sunlight frequently.

Uses of Dried Skim Milk

The almost completely digestible and assimilable milk proteins and the readily metabolizable calcium and phosphorous compounds in dried skim milk, make it especially valuable as a constituent of the diets of children and adults, and of the feed of growing animals.

The most convenient method of supplementing the diet with milk solids not fat is that of adding dried skim milk to foods in daily use. A few of them are breads and cakes, biscuits and crackers, ice cream, candy, chocolate drinks, sausages, meat loaf, custards, puddings, sauces, gravies, etc. Often the dried skim milk improves the texture, appearance, and flavor of the product in addition to enhancing the nutritive value.

For the same reasons that skim milk is one of the most valuable of human foods, it is also one of the best foods for other animals and for fowls. This fact has been appreciated by the most successful raisers of calves, chickens, dogs, goats, foxes, etc. Work at the Minnesota Agricultural Experiment Station has shown that with the gradual decrease of the quantity of whole milk fed to a calf during the first 14 days, skim milk should be added to the feed in increasing amounts up to the sixtieth day. The value of this method of feeding has been confirmed by work at other stations, and dried skim milk has been found to be a convenient form of skim milk to use as a grain supplement in these cases.

Incorporation of liberal quantities of dried skim milk into the diet of growing chicks has been reported to be effective in protecting them against coccidiosis. Workers at the California Agricultural Experiment Station recommend the use of dried skim milk in their feeds to the extent of 40 percent of the weight of the dry materials. Other workers at the Wisconsin and New York (Cornell) stations also recommend the liberal use of dried skim milk in the feeds of chickens.

Most of the dried skim milk produced at present is used in the manufacture of bread and ice cream. Considerable quantities of the lower grades of the product and some of the better grades are used in poultry and animal feeds. Dried skim milk insures a ready source of skim milk solids of uniformly good quality, is economical in handling and storing, and is convenient to use. These advantages have been recognized by the industries mentioned and are also being recognized by farmers in may localities, who maintain a supply of the product for use in the feeds of their farm animals. Smaller units of trade, i. e.,

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hotels, clubs, etc., also are aware of the many advantages of the product. This is especially true in the areas of low milk production.

Handling and Storing

With the increased manufacture and greater use of this product has come the need for more convenient methods of handling it, especially in smaller lots.

Dried skim milk should be maintained at a low moisture content throughout the period of its use in order to prevent spoilage. Because of its avidity for moisture, moistureproof containers are the only assurance against these changes. For the trades wherein large quantities are used the product is usually packed in specially constructed barrels. With greater general use of the product by the smaller manufacturers, and in the household where consumption is limited, a need has arisen for moistureproof cartons or packages which will facilitate the distribution of small quantities to the retail trade.

The laboratories of the Bureau of Dairy Industry have found that bags of bond paper containing a laminated glassine inner liner, or well-constructed and waxed paper cartons, will exclude moisture over long periods even in a relatively humid atmosphere and can, therefore, be used in the retailing of this product in small lots. Further research work along this line will undoubtedly result in the disclosure or development of other types of containers that can be used for this purpose and should aid materially in the greater distribution and use of dried skim milk.

GEORGE E. HOLM, *Bureau of Dairy Industry.*

DUTCH Elm Disease Must be Eradicated to Save American Elm

Wide-spread destruction faces the American elm through the spread of the Dutch elm disease, caused by a deadly fungous parasite introduced from Europe. The presence of this disease in the vicinity of New York Harbor was discovered in June 1933, but subsequent observations indicate that it may have become established there as early as 1929. It is now known to have invaded an area of approximately 2,500 square miles in New Jersey, New York, and Connecticut, within a 40- to 50-mile radius of New York City. By October 1934 more than 7,500 diseased trees had been located in this center of infection. Presumably many more are diseased but had not at that time developed characteristic external symptoms.

In practically all the States east of the Rocky Mountains the American and other species of elm constitute an irreplaceable public asset. In the Northeastern States particularly the American elm is the characteristic shade tree along streets and about dwelling houses. As such, this species has an economic value that runs into many millions of dollars. The enhanced value of real estate due to the presence of elm shade trees in many parts of the United States may hinge on the success of the campaign against this disease in the restricted area at present infected.[1]

[1] After this article was written the Public Works Administration on the recommendation of the Department allotted $677,000 for combating the Dutch elm disease. Owing to a provision made by Congress, that the regular appropriation will be reduced by an amount equal to any amount that may be allotted for this purpose from Federal emergency appropriations, the amount actually available for combating the Dutch elm disease, including the location and removal of potentially diseased and dying elm trees, is $527,000. Work under this allotment was started early in 1935.

Observations of the effect of the Dutch elm disease in Europe, as well as in the infected area around New York City, indicate that this disease is capable of wiping out all our native species of elms. There is no known cure for the Dutch elm disease. The only present hope of preserving our elm plantings rests on the eradication of the disease from this country, which present information on the means of its spread indicates may be possible. The accomplishment of this task necessitates immediate action to check the spread of the disease while it is confined to a comparatively small area, and the cost of destroying infected trees is not prohibitive. Another year's delay will dissipate the only chance of saving the elms, or at least will multiply the cost of an adequate eradication program in the future.

Caused by Parasitic Fungus

The Dutch elm disease is caused by the parasitic fungus *Ceratostomella ulmi* (Schwarz) Buisman, which lives and develops in the sapwood of elms. The presence of this parasite in a tree results in the growth of obstructions in water-conducting vessels, first of the branch originally attacked and eventually of the entire tree.

The first external symptom of the disease is the wilting or dying of the foliage of the infected twig or branch, and this may occur as early as 10 days after the part is attacked. Apparently, however, these symptoms may not be in evidence for some time. Field observations in 1934 indicate that the disease does not usually enter a large proportion of the water-conducting vessels of the tree until the spring following infection. Early in the spring the American elm develops a new ring of such vessels. The fungus may cross into this new zone of vessels and may spread with great rapidity to all its parts in the roots as well as in the aerial portions of the tree. The foliage wilts and dies, and finally either the entire tree dies or there may be a temporary recovery as scattered new vessels laid down in the summer wood permit partial circulation of water.

Soon after an elm branch or tree begins to die, it may be invaded for breeding purposes by bark beetles and other wood-boring insects. One of these bark beetles, *Scolytus multistriatus* Marsh., is of European origin, but was reported in the United States as early as 1909. This beetle has been found at various points from northeastern Massachusetts to southeastern Pennsylvania, and it is well established in most of the infected areas in New York, New Jersey, and Connecticut. This bark beetle has been demonstrated to be an important agent in the spread of the Dutch elm disease in this country. When adults emerge from the bark of a diseased elm, they may carry viable fragments or spores of the fungus in or on their bodies. These adults fly to young twigs of elm, and in feeding on the succulent tissues, especially in the crotches of such twigs, they may inoculate healthy elms with the fungus. As these trees wilt and begin to die, they in turn are entered by bark beetles seeking to establish new broods. Thus the cycle continues, with rapid multiplication of both the beetle population and the number of diseased trees.

Symptoms Favor Eradication of the Disease

Fortunately, the relation of fungus development to beetle infestation is such as to favor eradication of the disease. Bark beetles do not start to breed in a diseased elm until the affected part is so weakened

as to show external symptoms. Then 50 to 60 days elapse before the new adults mature, emerge, and spread the disease to other elms. Therefore, by systematically inspecting all elm trees within and near the infected area once a month during the foliage season, when the beetle is active and disease symptoms are readily apparent, and thoroughly destroying all diseased trees as soon as they are found, it appears practicable to prevent the escape of this disease carrier from every infected tree. Once the spread of the disease has been halted, continuation, for a number of years, of systematic inspection of the infected area and prompt destruction of trees in which belated symptoms appear should result in complete elimination of the disease.

Eighteen elms attacked by the Dutch elm disease have been found outside of the main area of infection in the vicinity of New York City. A single diseased tree was discovered in Cincinnati, Ohio, in 1930. In the same year 3 infected trees were found in Cleveland, Ohio, and additional infected trees have since been discovered, 4 in 1931, 1 in 1933, and 2 in 1934. One infected tree was found in Baltimore, Md., in 1933. New isolated infections in 1934 comprise 1 tree in Old Lyme, Conn., 1 tree at Norfolk, Va., and 4 trees in Indianapolis, Ind.

All these isolated infected trees, except the one near Old Lyme, Conn., are definitely associated with known shipments of burl elm logs from Europe. Such logs are recognized as the means of entry of the Dutch elm disease into the United States. Present information indicates that the infected tree near Old Lyme resulted from the movement of domestic diseased material. There is no indication that any of these spot infections have become centers of spread, evidently because of the absence of the European elm bark beetle from these localities and because the diseased trees were immediately destroyed.

Following the finding of a diseased elm in Maplewood, N. J., in June 1933, extensive scouting was carried on in New Jersey, New York, Connecticut, and neighboring States in an attempt to define the limits of the infected area. During the winter and early in the spring of 1934 scouting for diseased trees and their destruction were continued by various recovery agencies. In May and June the rapid development of serious symptoms in elms infected in 1933 or in previous years necessitated a sharp upward revision of the estimated number of trees affected. The total number of diseased trees that had been found by October 24, 1934, in this infection center had reached 7,557, of which 5,032 were in New Jersey, 2,470 in New York, and 55 in Connecticut. All but approximately 1,450 of these trees had been removed by this date.[2] One systematic examination of the entire area known to be infected, plus a survey of a safety border arbitrarily established 10 miles beyond the outlying infections found, was completed. A large part of this area was examined a second time, and a relatively small portion was examined three times at intervals of approximately 1 month.

Because at least one winter is required for the majority of infected trees to develop marked external symptoms, at no time does current information based on these symptoms necessarily represent the current status of the disease. Figure 17 represents the principal infected area and the number of diseased elms as known on October 24, 1934,

[2] Diseased trees found in this infection center up to Apr. 6, 1935, totaled 7,773, of which 5,134 were in New Jersey, 2,583 in New York, and 56 in Connecticut. Only 6 known diseased trees remained standing.

after the completion of the first systematic examination of the known infected area and its environs.

Dead and Dying Trees May Harbor Infection

In addition to the known diseased trees still standing, there is in the work area a large accumulation of dead and dying elms, many of which may be harboring the disease. Elimination of these deca-

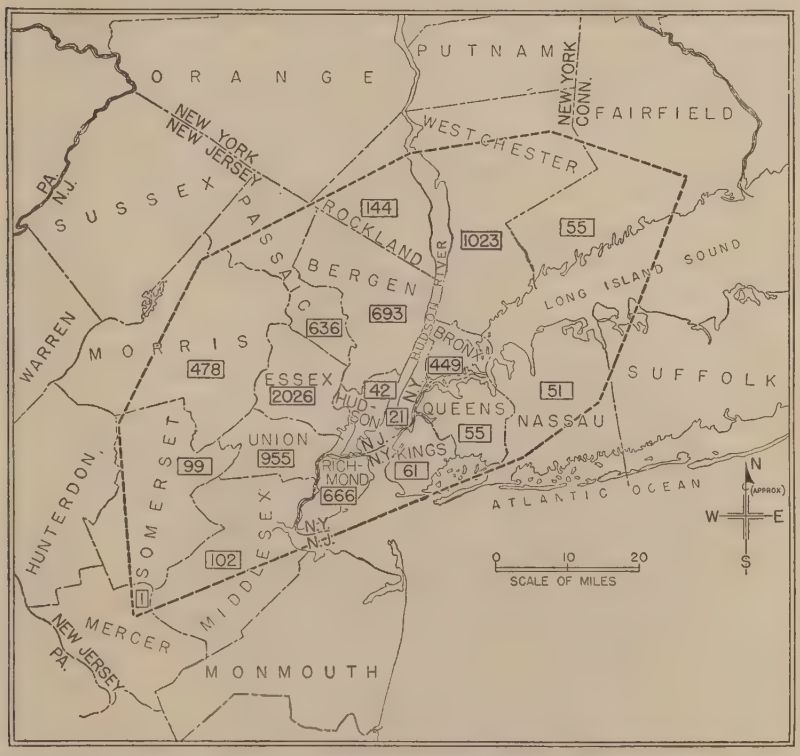

FIGURE 17.—The extent of the principal area known to be invaded by the Dutch elm disease, and the total number of diseased elms confirmed in each county, as of October 24, 1934.

dent and dead elms is essential to the success of the disease-eradication program. The completion of this clean-up work before the spring of 1935 will permit concentration of location and eradication activities in 1935 on the new crop of dying elms.

The increased knowledge of the Dutch elm disease situation gained during 1934 has furnished a sounder basis for optimism with respect to the ultimate eradication of the disease. However, it is recognized that only a thorough, long-term program of adequate proportions can preserve for the future the stately beauty of this unsurpassed shade tree, the American elm.

L. H. WORTHLEY,
Bureau of Entomology and Plant Quarantine.

EGG Hatchability Is Increased by Frequent Turning in Incubator

The hatchability of fertile eggs may be increased by frequent regular turning during the first 2 weeks of incubation, recent investigations indicate. Eggs in large incubators are usually turned mechanically, a half turn in one direction at one turning, then a half turn in the other direction at the next. Eggs in small incubators are usually turned by hand, the

FIGURE 18.—Twisted albumen of an egg that was turned always in the same direction during incubation.

direction of successive turnings depending on the operator. The usual number of turnings a day is from 1 to 3. Recent data obtained at the United States Animal Husbandry Experiment Station at Beltsville, Md., indicate that eggs turned mechanically at 15-minute intervals, about a half turn in one direction at one turning and an equal distance in the opposite direction at the next turning, hatched 7 percent better than eggs turned 3 times a day by hand. Both lots of eggs were of the same general origin and were in the same incubator at the same time. Still another investigation indicated that eggs turned

at least 8 times a day, at 3-hour intervals night and day, will hatch better than eggs turned less frequently.

The manner and frequency of turning the eggs in the experiments at Beltsville were patterned after the procedure followed by the setting hen. She turns her eggs once every 15 minutes, on the average, in one direction at one turning, back at another, not over and over in the same direction.

Eggs turned always in the same direction, at 15-minute intervals from the beginning of incubation, usually fail to hatch. In many cases, the thick strands of egg white at each end of the yolk, the chalazae, become twisted so tightly (fig. 18) that the yolk is ruptured during the first week of incubation. Even when the embryos live to the second week of incubation, the membranes through which they breathe and also obtain lime from the shell seldom adhere properly to the shell membrane.

The Proper Position of Eggs in Incubators

Hatchability may be increased also by maintaining the proper position of the eggs in the incubator. The position of the egg partly determines the position of the chick in the egg at hatching time. Between the third and fifteenth days of incubation the operator should not allow the small end of the egg to be above the large end for a long period, because such a position is likely to result in the chick's head being in the small end of the egg at hatching time. Such a chick has only about half as much chance of hatching as a chick in the normal hatching position with its head in the large end of the egg.

The turning and position of the eggs are most important during the first 2 weeks of incubation. The position of the chick within the egg is less affected by outside influences after the fifteenth day of incubation than before. Voluntary movements of the chick in response to gravity, mechanical shock, suffocation, or other cause probably result in some shift in position. Though it is certain that the effects of turning and egg position are relatively slight during the third week of incubation, the standard recommendation that eggs be kept in proper position and turned regularly to the eighteenth day of incubation should be followed until sufficient evidence is produced to indicate that even a slight improvement in hatchability may be obtained by some other method.

T. C. Byerly, *Bureau of Animal Industry.*

Egg Yield of Chickens Is Affected by Content of Vitamin D in Diet

To obtain good egg production it is not enough to give chickens all the feed they will eat. Unless their diet is carefully compounded, so that it contains an adequate quantity of all the necessary nutrients and accessory food factors, they will not lay all the eggs they are capable of producing.

A deficiency of vitamin D in the diet has a detrimental effect on the production of eggs and also decreases the strength and thickness of shells and the vitamin D content of yolks. If, in the case of pullets, the feed contains an inadequate supply of this accessory food factor, skeletal development is delayed. The net result is that the time

required to reach full production is increased and an unnecessarily large number of small eggs is obtained. In the case of both pullets and hens, the ability of their eggs to hatch is materially decreased, if a diet containing an inadequate supply of vitamin D is fed.

Sources of Vitamin D

It is fortunate, therefore, that vitamin D is very easily supplied to laying chickens. Among the practical means of supplying this vitamin are sunshine, cod-liver oil, sardine oil, some of the other fish oils, and cod-liver meal. Ultraviolet irradiation of the chickens, or the use of irradiated yeast and solutions of irradiated ergosterol may be resorted to, but at present these methods of supplying vitamin D are either unsatisfactory or not economical. It is probable, however, that, in the near future, satisfactory irradiated products will be produced cheaply enough to make their use economical.

The cheapest source of this highly important vitamin is sunshine; but in many parts of the country during late fall, winter, and early spring, it is not possible for the chickens to get enough sunlight to supply all the vitamin D required. At such times it is necessary to have a more dependable source, such as cod-liver oil or sardine oil.

Inasmuch as not all cod-liver oils, sardine oils, and other fish oils containing vitamin D have the same potency, it is necessary that only products of guaranteed vitamin D content be used. A good cod-liver oil will contain 2,400 or more international vitamin D units per ounce, or 85 or more international vitamin D units per gram. Dependence should not be placed on cod-liver meal, unless its potency is definitely known.

Experiments on the vitamin D requirements of laying chickens in full production indicate that each bird should receive between 70 and 80 international vitamin D units per day. In other words, to meet this requirement, each ounce of feed consumed would have to supply at least 20 of these units.

Requirements Vary With Season

If the all-mash system of feeding is used, and the chickens are kept in strict confinement without access to sunlight, 1 pound of good cod-liver oil per 100 pounds of feed mixture will ordinarily supply enough vitamin D. If the mash-and-scratch system of feeding is employed, from 1.5 to 2 pounds of good cod-liver oil should be added to each 100 pounds of mash, depending on the proportions of mash and scratch which are fed.

Laying chickens are not usually kept in strict confinement without access to sunlight; and when they are not so kept, it is unnecessary to supply the full quantity of cod-liver oil indicated above. The quantity to use will depend on the amount of sunshine the birds receive. During November, December, January, February, and March, from 75 to 80 percent of the quantity of cod-liver oil recommended for strictly confined birds should be used; and during the other months of the year, between 25 and 50 percent as much. In any case, the amount of cloudy weather should be the determining factor.

If cod-liver oil that has been fortified, sardine oil, or other fish oils are used, the quantity to be added to each 100 pounds of feed will

depend on the guaranteed potency of the oil in question. A fortified cod-liver oil is one to which additional vitamin D has been added.

Caution Against Excess of Oil

A word of warning should be added about using too much cod-liver oil. Although 1 or even 2 percent of cod-liver oil ordinarily gives excellent results, it does not follow that 4, 6, or 8 percent will give still better results. Experiments conducted at the United States Animal Husbandry Experiment Station, Beltsville, Md., indicated that, in general, no advantage is to be gained by feeding a diet containing 3 percent of cod-liver oil, as compared with 2 percent. Also, it was found that when the diet contained as much as 4 percent of cod-liver oil, the hatchability of the resulting eggs was decreased, and that 6 to 8 percent of cod-liver oil materially decreased egg production, as well as hatchability.

HARRY W. TITUS, *Bureau of Animal Industry.*

EROSION in the Black Hills After the Burning of the Forest Cover

Many surveys have been made by foresters and engineers to size up the extent and import of the erosion problem, and detailed studies have been initiated to determine the effect of the removal of the land's natural cover—forest, brush, grass—upon erosion and run-off. It has become

FIGURE 19.—A typical timbered slope in the Black Hills, with abundant reproduction in the foreground.

increasingly apparent in the United States that a detriment to forest cover, particularly on steep slopes, means a detriment to soil and water supply.

A notable example of severe erosion immediately following the destruction of the forest cover by fire, in contrast with the very satisfactory protection afforded by forest cover on an adjacent area, is found near Rochford in the Black Hills National Forest, S. Dak. The destruction of the protective cover was the only change that

occurred prior to the time the erosion took place—all other factors remaining unchanged. Here the direct relationship between the removal of forest cover and subsequent erosion is clearly demonstrated.

Conditions throughout the timbered portion of the Black Hills region, which includes between 1 and 2 million acres, are generally ideal with regard to ground cover and its effect upon the prevention of erosion (fig. 19). Forage is not abundant on the more densely timbered areas. The grasses are of unpalatable species and grazing is relatively light. Consequently, there is seldom heavy tramping by livestock with resultant compacting of the soil, favoring rapid run-off. The watersheds are generally well timbered and a thick mat of humus and litter covers the ground. This thick layer of vegetable matter is a very important factor in delaying run-off and in preventing erosion.

Burned-Over Areas Becoming Restocked

Reproduction of ponderosa pine comes in abundantly on sites suitable for tree growth, especially where the soil is coarse and light. As a result young forests are becoming established on many bottom lands and slopes formerly covered only with grass or farmed. In fact, there are few burned-over areas in the Black Hills that have not become stocked with ponderosa pine trees within a period of 10 years after fire (fig. 20).

FIGURE 20.—Reproduction of ponderosa pine extending into a park. Here is a dense stand of grasses and herbaceous plants, and no sign of gully erosion.

On some areas within this section, however, there has been considerable active erosion during past years. But the old gullies have generally become well sodded, indicating that the former surface run-off and the accompanying active erosion have been effectively checked. Frequent examples of such "healing" of former erosion may be found.

In contrast to these conditions, the situation that exists on an area in the northern portion of the Black Hills where the forest was destroyed by the disastrous fire near Rochford in the fall of 1931 is significant. Incendiaries set a number of fires which burned over an

area of 22,000 acres and were extinguished only after a 10-day battle by 3,800 fire fighters. On many slopes all of the trees, as well as the cover of grasses and weeds, were killed; duff and humus were completely burned.

FIGURE 21.—Conditions in a small gulch tributary to South Rapid Creek in the Black Hills in 1932, after the serious fire in the fall of 1931. The gully, 5 feet deep in places, was not in existence prior to the fire and is a direct result of a greatly increased surface run-off.

FIGURE 22. Another view of the gully shown in figure 21. An 18-inch culvert was adequate before the drainage basin was burned over.

Erosion Follows Forest Fire

The effect of this destruction soon became evident. During the following year (1932) rains washed down the bare hillsides carrying

quantities of rock and earth to the valleys below. Deep gullies were washed in the bottoms, and homesteads were covered with silt, rocks, and debris (fig. 21).

This destructive erosion was very pronounced along the road paralleling South Rapid Creek. A culvert in the road was washed out three times and the bridge which was finally installed had to be replaced (fig. 22). No such damage had occurred before the adjacent slopes were burned over. The stream bed was deeply gullied and large fan-shaped deposits of detritus varying from a few inches to 4 feet in depth were washed onto the homestead meadowlands (fig. 23).

It is significant to note that no gullying, depositing of soil and rocks, or washing away of culverts, bridges, and roadbeds occurred in other comparable situations where the cover on the nearby slopes had not

FIGURE 23.—Below the bridge shown in figure 22. The fan-shaped deposit of soil and rocks covers the meadow for a width of approximately 100 feet and to a maximum depth of 4 feet. Before the 1931 fire there had been no outwash from this gulch to damage the meadow. In the background is the burned-over slope.

been destroyed or damaged by fire. The contrasting areas provide a clear demonstration of the importance of keeping watersheds green if serious erosion is to be avoided.

M. W. THOMPSON, *Forest Service.*

EROSION Protection by Terracing Necessitates Run-off Water Disposal

Provision for the proper disposal of the run-off water at the ends of terraces is one of the most important and difficult problems encountered in terracing work. Pasture or timber areas sometimes make very satisfactory outlets, but careful attention must be given to maintaining the cover and to preventing the development of gullies at the foot of the slope where the water leaves the pasture or timber area. The water must be spread somewhat over the ground surface so as to prevent the con-

centration of sufficient water to cause gully erosion which may occur even on pasture or timber land.

Natural watercourses protected by vegetation on comparatively gentle slopes make the best outlets. Erosion in a channel on moderate slopes ordinarily can be prevented by a dense growth of vegetation, but on steeper slopes it is often necessary to provide additional protection such as is described later in this article. In figure 24 is shown a broad shallow draw serving as a terrace outlet and protected by a thick growth of grass. It is important that the draw be protected by grass as far up its sides as the run-off water will reach, to prevent the possibility of the water washing a gully down the slope on each side of the grass strip parallel to the watercourse.

Natural watercourses are not always available because the water generally cannot be carried beyond the field being terraced. In order to make the best use of natural drainage outlets, it is sometimes

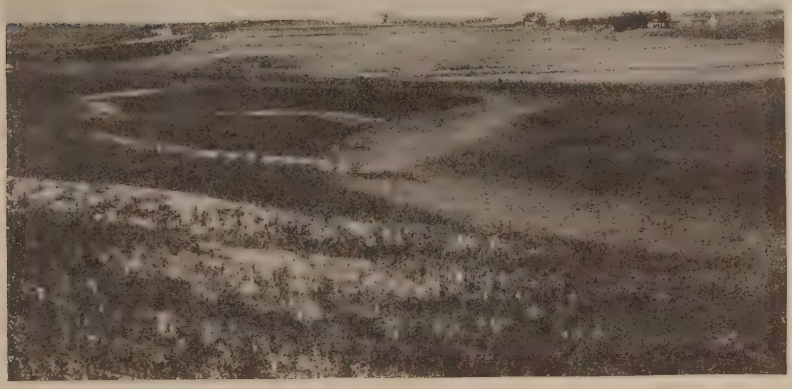

FIGURE 24.—Natural watercourse seeded to grass to serve as terrace outlet channel.

advisable for neighboring farmers to cooperate in terracing adjoining fields by running the terraces across property lines. If this cannot be done then it becomes necessary to take the water from the ends of the terraces directly down the slope along a fence or property line. Broad shallow ditches should be constructed to carry the run-off water from the terraces down the slope generally at a comparatively low velocity. Where narrow deep ditches are used high velocities occur and serious cutting or erosion results.

The upper end of the broad shallow ditches on moderate slopes can be protected by vegetation alone provided a good dense cover of grass is established. However, where the ditch is to carry the discharge from more than three terraces of moderate length, some other protection against erosion is likely to be needed in addition to the vegetation. Usually checks of nonerodible material are installed at intervals down the slope. Ordinarily one check is located at the end of each terrace and another between each two terraces, on moderate

slopes. On steeper slopes the checks should be spaced at closer intervals. These checks serve the double purpose of checking the development of small gullies in the bottom of the channel and of spreading the water uniformly over the bottom of the channel which reduces the velocity and thereby the erosive power of the water.

Checks are sometimes built of sod or sod bags, which are effective for small drainage areas and for ditches on moderate slopes. The sod strips should be not less than 30 inches wide. They should be watered occasionally when first set out to obtain the best results. When sod bags are used they should be buried in the channel with the upper sides at the same height and even with the bottom of the channel. The bags should be laid end to end across the channel without leaving gaps between them which may be done more easily if the bags are not filled quite full.

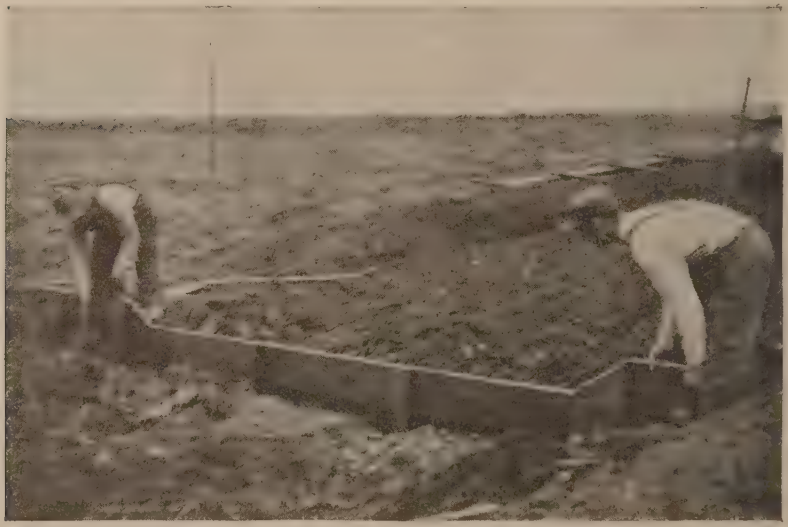

FIGURE 25.—Setting a lumber check in terrace outlet ditch.

One of the simplest checks consists of a 2- by 12-inch plank across the ditch buried with the upper edge even with the bottom of the ditch. Short planks are spiked at each end to form a protection to the side slopes of the ditch. A lumber check being set is shown in figure 25. Where dry weather is apt to shrink the soil away from the plank, it is recommended that a strip of sod about 12 inches wide be set across the ditch against the upper and the lower sides of the plank. These checks have been found to be effective on moderate slopes up to about 8 percent, for limited drainage areas.

In the installation of all checks it is important that grass be established on the bottom of the channel as soon as possible after the checks are built. Bermuda, bluegrass, and buffalo grass are very effective in controlling erosion in outlet ditches, and different grasses can be employed to advantage in mixtures suited to the different localities. Tall grasses and weeds should be avoided as much as possible, and where used should be kept cut down so that the discharge capacity of the ditch will not be materially reduced. If tall growth

is permitted in the channel, overflowing of the ditch banks will result which may start the development of gullies down the slope outside the ditch.

Another type of check that has been found effective is built of small loose rock or stone about the size of an apple. A trench 18 inches deep and 18 inches wide is dug across the bottom and side slopes of the outlet ditch and is filled with stone or rock carefully placed so as to make the volume of voids as small as possible. Usually one rain will fill the voids in the rocks with silt, which tends to form a bond between the pieces.

Erosion in ditches with large drainage areas or on steep slopes cannot be effectively controlled by the above-described method. Also,

FIGURE 26.—Concrete check dams in terrace outlet ditch with Bermuda grass growing on sides and bottom.

it is not always practicable to build a broad shallow ditch and in some sections of the country it is not possible to obtain a satisfactory growth of grass in the ditches. Under these circumstances control of the erosion is usually accomplished by means of check dams built of permanent material and so spaced in the ditch that the crest of one dam is at about the same elevation as the foot of the next dam above. The object of spacing the dams in this manner is to reduce the fall of the ditch between dams and thereby the velocity and erosive power of the water. Figure 26 shows a broad shallow terrace outlet ditch in which erosion is controlled by low concrete dams, spaced as described above. Bermuda grass is growing on the bottom and sides of the ditch between the dams.

C. E. RAMSER, *Bureau of Agricultural Engineering.*

FARM Laborers in United States Turn to Collective Action

Because of their economic difficulties since 1929, farm laborers in this country have attempted collective action. Twenty-three strikes of agricultural workers were reported in 1933, and 25 in 1934 up to the end of September. At the end of September 1934, 33 agricultural workers' unions had affiliated with the American Federation of Labor. Of these, 12 were chartered in 1933, and 19 in 1934.

The economic background of these collective activities is indicated in the farm-wage and farm-labor demand and supply situation of the years 1929–34. The discussion of wages will be confined to rates per month with board, because more farm wages are paid in this than in any other way. Most comparisons of wage rates are made with those of the pre-war years 1910–14.

Farm wages changed but little from 1909 to 1915. They rose during the war period to more than double pre-war rates; the rise

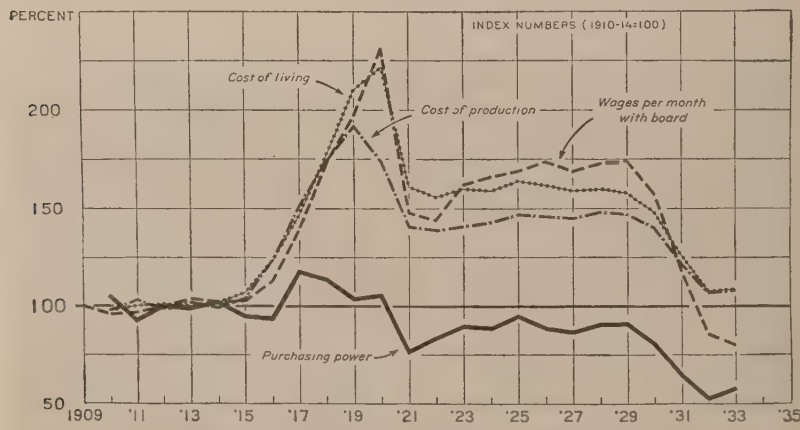

FIGURE 27.—Specified farm costs and farmers' purchasing power.

was nearly proportional to the rise in farm costs of living and in farmers' purchasing power. These relationships are indicated in figure 1.

The post-war depression of 1921–22 forced farm wages back, so that about half the wartime increase disappeared. Yet farmers found it hard to pay their laborers because the purchasing power of farm products had fallen off. Laborers found that their wages had fallen even more than farm costs of living. In addition, the industrial depression forced many workers previously nonagricultural to compete for farm jobs.

Farm wages had risen 10 percent by 1923, and held the gain from then through 1929. In the same period farmers' costs of production rose slightly. Farmers' purchasing power gained through 1925, but did not make up the post-war losses; after 1925 it declined again. Farmers throughout the 9 years, 1921 to 1929, found wage charges harder to meet than before the World War. Laborers, on the other hand, received wages higher in comparison with farm costs of living than before the war.

Wage Decline Marked After 1930

The economic collapse which began in the autumn of 1929 did not greatly affect farm wages or costs until the following year. From then through 1932 its effect was marked. There were no seasonal gains to check the fall of farm wages until after April 1933. They fell to four-fifths of the average of the 5 pre-war years. The farm-wage index declined to a third above that of farm-commodity purchasing power, and a quarter below that of farm costs of living. Farm-commodity purchasing power suffered a two-fifths drop to barely over half of that of the pre-war period. In 1932 it was 53 percent of the base period; a gain in 1933 brought it up to 58 percent.

From 1909 through 1920 farm-wage rates varied similarly in different parts of the country. Since then there have been striking regional differences. Farm wages in 1921 fell not quite 30 percent in the North Atlantic States, but in the West Central and Mountain States they fell nearly 50 percent. In general, these differentials have been maintained. Farm wages in the North Atlantic States in 1934 were close to or above their pre-war rates. Those of the other sections mentioned were decidedly below their pre-war rates, even after the summer increase.

From the post-war depression of 1921–22 until the winter of 1929, the demand for and the supply of farm labor was below normal, with supply usually above needs for the country as a whole. By April 1933 farmers were offering only 3 jobs, where they normally offered 5. Meantime, the farm-labor supply increased. The excess was increased by the competition of men thrown out of other employment. There were 5 workers available in January 1933 for every 2 farm jobs available. Since then, the demand for labor has increased in both agriculture and urban industry. In the summer of 1934 there were only 3 workers for every 2 farm jobs.

During the last 5 years many farmers have been compelled to reduce the number of their laborers, or their wages, or both. Hired farm laborers have striven to hold their jobs lest they be unable to get other work. The inevitable result has been a heavy drop in farm wages. By April 1933 average farm wages with board had fallen to $14.67 per month—less than three-quarters of the pre-war average. Some laborers worked for their board and lodging alone during the winter of 1933–34. There were reports during the summer that farmers were paying as little as 50 cents a day without board. Laborers with families were particularly hard hit.

In most previous years farm laborers were able to obtain relief by finding employment in other industries. Between 1929 and 1934 they had practically no such opportunities. Instead, there was a farmward movement of city workers. Many farm laborers could not get work and had to appeal for public help. In parts of the country even farm operators had sometimes to ask relief.

Such was the situation that forced hired farm laborers into collective action.

Farm laborers in some foreign countries have organized to a considerable extent. Those in the United States have made only a comparatively small start.

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Difficulties of Organization

Important difficulties hinder the formation of labor groups among farm laborers in the United States. Most hired farm workers are the only employees on the farms on which they work. They are widely scattered. Many farmers hire no labor. Relations between laborers and operators on farms are usually closer and more personal than in other enterprises; difficulties are better understood and adjusted than in most urban industries. Working and living conditions and relations with employers may vary so greatly as to prevent much class interest among farm laborers. Many agricultural workers move from one locality to another, and from agricultural to other jobs, so that contact and cohesion with their fellows are temporary and slight. Normally, it is possible to obtain relief from unsatisfactory farm working and living conditions by moving to other work. Organization among hired agricultural laborers has usually been attempted only when large numbers of them in limited areas have much in common, and where living and working conditions and wages have been unusually poor.

There have been three principal periods of effort to organize agricultural laborers. (1) The American Federation of Labor shortly after 1910 effected organizations of migratory trade-union members and seasonal agricultural workers on the Pacific coast. Most of these unions lasted only a short time.

(2) The Industrial Workers of the World formed the Agricultural Workers' Industrial Union. During the World War the activities of that body were widespread in the Wheat Belt and the far Western States. It met strong opposition. The membership was largely migratory, and of late years it seems to have declined.

(3) The most recent period of activity in the organizing of agricultural laborers followed the crisis of 1929. Organization seems to have been made more easy in some parts of the country by the depression. Laborers have been less able to migrate. There has been a growth of cohesion. The movement has spread east of the Mississippi for apparently the first time. Unions have been formed among orange workers in Florida and onion laborers in Ohio.

One indication of the extent of the movement is the number of charters granted in 1933 and 1934 by the American Federation of Labor to groups consisting principally of agricultural laborers. Some farm-labor groups have been formed without affiliating with national bodies. Several such attempts have been made on the Pacific coast, particularly among foreign-language groups of fruit and vegetable workers, such as the Spanish-Americans. Labor societies and unions have risen among sugar-beet workers of Colorado and nearby States. One was reported in Michigan. Probably the oldest and longest standing union of agricultural workers has been a union of sheep shearers operating largely west of the Mississippi and at stockyards and feeding plants near Chicago.

Causes of Some Strikes

Farm working conditions or wages, or both, have been the causes of some strikes. Most of these disputes have occurred on the Pacific coast; there have been others in Arizona, Colorado, Ohio, Florida, New Jersey, and Massachusetts. A strike of farm laborers usually

affects directly less than 1,000 workers. One strike, however, affected 12,000. There has been violence in some of the disputes. The good offices of the Conciliation Service of the United States Department of Labor were called upon in 4 farm labor strikes in 1930; 1 in 1931; 5 in 1932; 8 in 1933; and 8 in the first 7 months of 1934.

Conditions driving farm laborers to organization have often been such as to make them receptive to radicalism. Employers and the public, on the other hand, have frequently actively opposed new labor boards because of suspicion and of self-interest. Recent developments in sugar-beet-growing sections have demonstrated, however, that properly conducted farm-laborers' organizations can be very helpful in service to their members and in their relations with beet growers, sugar companies, the public, and Government officials.

The past history of such movements indicate that when the present economic stress is over, the movement will decline in numbers and influence, but if the farm laborers through wise means can obtain improvements in their living and working conditions and in wages, the effects will be far-reaching.

JOSIAH C. FOLSOM, *Bureau of Agricultural Economics.*

FARMING, Forestry, and Industry Profit from Land-Use Planning in California

In California the most critical conflicts between major land uses occur in the foothill belts of the Sierra Nevada and other mountains. A recent comparative study in a typical mountain and foothill county by the California Forest and Range Experiment Station of the United States Forest Service and the Giannini Foundation of the University of California has brought out some very significant facts and led to conclusions which may be of use in similar difficulties elsewhere.

The Section Studied

Eldorado County, in the elbow of California, has a total area of about a million acres, of which the eastern half and a little more is within the mountainous virgin-timber belt, the division nearly coinciding with the boundary of the Eldorado National Forest at 3,500 feet elevation—about the upper climatic limit of agriculture. In the early mining days this was the most populous county in the State. Agriculture flourished with mining. Peaches cost $3 apiece in gold. But mining declined, and agriculture with it. Then came lumbering. Last has come the specialization of agriculture in fruit orchards, which in its turn has fallen upon evil days. Population is dwindling. On a declining tax base, tax costs are rising, even without the influence of a world-wide depression. What can be done about it?

The lower, or western and southern portion of the county, which was mainly grassland from the beginning, is occupied by large livestock ranches that rely mainly on the high mountain ranges within the national forest for summer feed. The areas of agriculturally good soil are always scattered, in small patches. The larger part of those at suitable elevations for agriculture are devoted to fruit raising, mainly of pears. But all this cultivated land is less than 2 percent of the county area. Upward from Placerville, ranches are more and more scattered and isolated, and income is more precarious and dependent upon supplemental employment.

Pine timber once extended down to the 1,000-foot level. It was largely cut off in the early mining days, but more than 125,000 acres have come back to second-growth timber, fairly even-aged at an average of 60 years and varying in density and thrift according to the quality of the soil and extent to which it has been burned over. The rest of the once-timbered area is now mainly covered by brush or scrubby oak woodland.

This second-growth timber of the western part of the county already amounts to 1¾ billion feet board measure. If protected from fire and allowed to grow another 60 years, it could produce 4 billion feet, worth by that time probably $20,000,000. The commercial timber area, largely between 3,500 and 6,000 feet elevation, contains a remarkable volume of fine timber constituting the largest single item of present wealth in the county. Above the 6,000-foot level the timber becomes less valuable for lumber production, and the chief value of the land is for wildlife conservation and recreation, which is growing more rapidly in volume and monetary return than any other land use of the county.

How the Study Was Made

A thorough survey of the physical lay-out resulted in a classification of the county into land classes based upon soil, topography (rough-

FIGURE 28.—The Eldorado County foothill country. Grass, woodland, and brush.

ness), altitude, and climate, also a map of the vegetation cover of the county including virgin timber, second growth, woodland, brush, grass, and crop land, and of the area which once bore forest but is now without it, together with detailed data on the rate of growth of the timber on the different soils. This was followed by economic surveys of sample farms of every major class in the county; also of the irrigation districts, the industries, the power situation, with present and prospective reservoir development; of recreational use and of the county government, including roads, schools, and taxation; and the relation to all these of the national forests. The survey covered about

half of the area and volume of virgin timber in the eastern half of the county and most of the higher land (fig. 28).

What the Plan Provides

The result of this work was a division of the county into five use zones, each with a definite character of present use, and individual possibilities of improvement of its private and public returns.

Fruit raising is recommended to be held at its present expansion until better market prospects develop. The efficiency of livestock raising, it is pointed out, may be improved by larger home production of supplemental feed and by group organization to make possible a larger and more coordinated use of mountain range, progressively by elevation with the advance of the season.

One of the findings which affects widely the prospective best use of lands is that the second-growth timber area, by reason of its high timber-growing capacity, is much more valuable for timber crops than for grazing. It is shown that the ranchers, instead of continuing their long-tried efforts to improve this range by slashing and burning the young timber, will reap greater ultimate profits by protecting the second-growth timber. This will provide a home supply of box material for the fruit ranchers and will stabilize farming by giving the ranchers profitable supplemental employment (fig. 29).

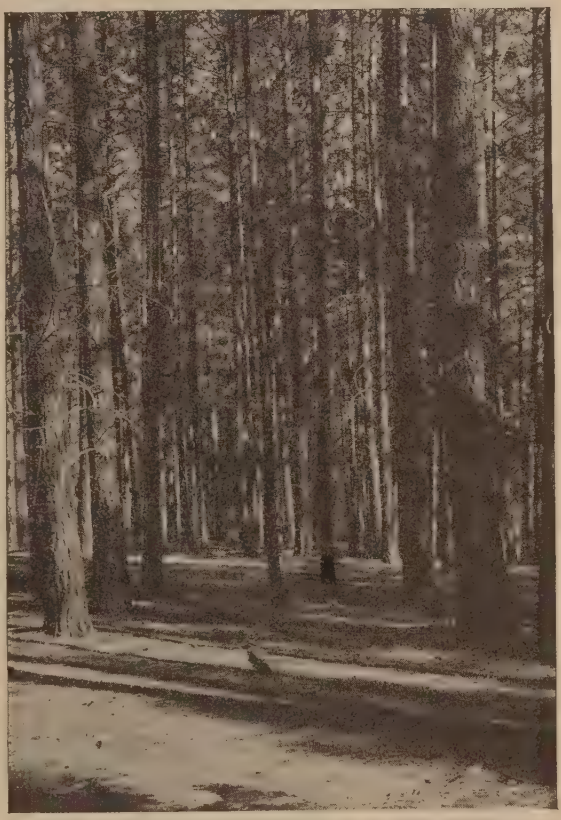

FIGURE 29.—A well-stocked stand of 60-year-old pine in western Eldorado County. This second growth is just entering the home stretch toward merchantability and its owners cannot afford to sacrifice its 60-year start by cutting it now to make poor grazing.

In the areas of scattered occupancy toward the upper limit of agriculture, where the land is increasingly occupied by second-growth timber, it was often found that the settlers could not make enough money to live save by working on the county roads which were put in so that they could live there. And the maintenance of their little schools of 5 to 10 pupils cost as much as $300 per pupil, as against $70 per pupil in schools of 25 or more pupils in better populated districts.

It seemed clear that the whole county would profit by devoting this district to forest-crop production and gradually depopulating it—not by arbitrary dispossession, but by providing better opportunities for making a living elsewhere in connection with the sawmills and other small industrial centers.

A definite part of the plan for the county is the stimulation of localized industrial development, under the guidance of a competent survey of opportunities and needs, so as to avoid misdirected promotion. Coupled with this will be an endeavor to assure the maintenance of renewable land resources, such as forests and grazing forage by getting the industries which use them to take from the land no more than its growth can supply. As the most profitable use to which they can be put, it is planned to devote the higher mountain lands to recreation, as is already the practice in the Eldorado National Forest.

The path to these ends is the coordination of private management with that already in practice upon the national forests. Such coordination in the interest of the whole county community will, it is hoped, result in soundness of economic and social structure. The leaders of the county have accepted the plan and through a strong committee are moving toward its consummation.

C. L. Hill, *Forest Service.*

FARM-MANAGEMENT Research Needed in Crop-Adjustment and Land-Use Planning

All change and readjustment in agriculture involves, directly or indirectly, judgment and action by the individual farmer. The most important test of the desirability of any proposed adjustment is whether or not it adds to the farmer's net financial income or otherwise raises his standard of living. Weighing the advantages against the disadvantages of changes, arriving at decisions, and then carrying out the decisions, constitute the management function in the farmer's job. An understanding of this management function is vital to the successful shaping and administration of adjustment programs.

In the earlier years of farm-management research its chief objective was to find the profitable forms of organization for farms and the most effective methods of farm operation, with a view to using the results in educational effort to make poor farmers good and good farmers better; in other words, to make farmers more efficient in the restricted sense of that term. Now with the development of governmental policies and programs for agriculture another objective of prime importance is in evidence. It is to obtain and make available to responsible public agencies the essential understanding of the farm-management function, and of the conditions under which the farmer operates. Farm-management research, to be effective in reaching this objective, must give those who conduct it an accurate and detailed understanding of what the farming actually is in the area being studied, and through such understanding give them a vision of what the farming can be with the best adjustments that are possible and practicable. It must also give an understanding of the forces and conditions that have made the farming what it is and that create its better possibilities—as yet unrealized. Only through such understanding can the effects of proposed measures for improvement and the effects of evolving economic

conditions and forces be correctly judged. The considerations leading to managerial decisions are as important to a true understanding of agriculture as the results of the decisions themselves.

All this requires that farm-management research avoid the danger of being too formal and stereotyped. It cannot be carried out successfully merely through the gathering and analysis of statistics. Important as figures and their careful analysis are, the farm-management research worker must think and live himself into the farmer's own situation and problems through adequate first-hand contact and observation, or his results will be sterile.

Farm-management research as thus conceived bears a vital and direct relation to public agricultural programs. This program is creating new considerations which the farmer must take into account in his own planning. They vitally affect the farmer's mode of utilizing his private resources. It is important that the Government's plans involving these changes be tested and approved by the criteria of sound farm economy.

Farm-Management Phases of Crop and Livestock Adjustment

The first great phase to be developed in the new public program for agriculture was crop and livestock adjustment. The leaders responsible for the development of this phase of the program realized from the beginning the importance of gearing it closely to the nature of the farm and the managerial problems of the farmer. However, haste was imperative and only limited recognition could be given to these considerations. With the first year of experience as a background, planning for future programs is being done with consideration of the effect of the details of such a program on the internal organization and operation of the farms affected.

The farmer's net return from operation is, of course, a function of three variables, volume, prices, and costs. The approach of the present adjustment program is primarily from the price side. It is deemed imperative to secure for the farmer more adequate prices in order that the income side of his balance sheet may be restored to a more favorable condition. However, in the long run the cost side of the farmer's equation cannot be ignored. In a broad way costs are tied up not only with the prices the farmer must pay for the things he produces with but also with the efficiency with which these things are used on the farm.

Costs Fixed and Variable

It is important to consider the nature of the various cost elements entering into the farmer's production. They may be broadly classed into two groups, those which are fixed and those which are variable. In this sense the fixed costs are those which, within a given year, or longer, do not vary with the volume of the farm commodities produced. The variable costs, on the other hand, are those which tend to rise and fall pretty much in proportion to the volume of product. One of the most important considerations from this point of view in planning an adjustment program is the effect which the program itself will have upon these two classes of costs. Without sacrificing the main objective of the program, namely, the adjustment of supply in its effect upon prices, it is extremely desirable so to shape the details of the program that it will be easy for the farmer to participate in terms of

his internal organization and operation particularly with reference to costs.

By way of illustration, let us take the case of a Great Plains wheat farmer. His fixed costs consist of interest on his investment in land, interest and depreciation on improvements on his land and on his working equipment, and his own labor and that of his family. His variable costs are made up largely of expenditures for fuel and oil, for repairs for his equipment, and for such hired labor as he must engage. It has been determined from recent studies that, with the equipment now in common use in that area, the best use of the farmer's resources can be realized on such farms by the proper adjustment of tillage and harvesting machinery to the power unit, let us say, a 15–30 tractor, together with the adjustment of acreage that will realize a maximum use of this outfit of equipment in carrying out the most effective production operations. A farm consisting of from 800 to 960 acres of which about 600 acres are in wheat seems to represent a best adjustment of this unit of equipment to land and to the farmer's labor. The major part of the cost in the operating of such a unit falls in the fixed-cost class. From the point of view merely of efficiency, a reduction of 10 to 20 percent in the wheat acreage means a lower utilization of this labor and equipment, and hence a decline in efficiency of use. Granting that the benefit to the income side of the farmer's business amply justifies this sacrifice in use, the problem remains of so adjusting the program, at least in its long-time aspects, as to make the sacrifice in utilization of his labor and other resources, and its effects on costs, a minimum disadvantage on the production side.

But No Costs Absolutely Fixed

In the long run no production costs are absolutely fixed. As machinery and power units become worn out and have to be replaced, and as the farmer has time, with the aid of Government agencies, to replan and reorganize his farm, these disadvantages can be reduced to a minimum. It is important to recognize these considerations at the outset and to provide in the planning definite means of their adjustment. In such planning the results of effective farm-management research have great utility.

The effect of proposed adjustments in one region may have important effects on the farming in other regions. There is much division of labor regionally in the complete production of some farm products as they finally reach the market. For example, the Corn Belt farmer buys feeder cattle and sheep from the rancher of the West, and raises feed for the dairy farmer of the Northeast. Due account must be taken of how proposed adjustments affect the individual farmer's managerial problems, not only in the region where the specific adjustment is proposed, but in the other regions affected.

Another matter which is receiving increasing attention in plans for the future is that of giving the farmer a more flexible contract under which he can work out his adjustment with due consideration to his own peculiar farm conditions. A sliding scale in the percentage reduction has been suggested as one means of making these programs more flexible and more applicable to the varying conditions on farms. The combining of crops into groups representing a single acreage base, together with the requirement of a reduction within certain maximum

and minimum percentages from this base, might be one way of realizing this desirable flexibility.

Another consideration of first importance, and one which is receiving increasing attention in the evolving plans, is that of soil conservation. Too often the farmer's own program has involved a sacrifice of basic productivity in the light of immediate needs. The Government agencies are recognizing an opportunity in the adjustment program for governmental help to the farmer in correcting this evil. In this connection the nature of public effort needs to be determined through an adequate understanding of the farm organization and operation in the areas involved.

Farm Management in Land-Use Planning

Land-use planning is another major element in the general readjustment program for agriculture that involves many vital farm-management considerations. From the farm-management viewpoint it appears that there are two fundamental objectives in this program as it is being evolved. The first is a better conservation of natural resources basic to the agricultural industry, and the second is the more economic use of such resources currently, in order to provide better support for an adequate standard of living for those engaged in farming. These objectives have far-reaching importance both from the point of view of the public and of individual farmers.

In this phase of the Government's program for agriculture, the public is assuming responsibility for the correction of much evil that has crept into the utilization of agricultural land through the working out of the previously prevailing land policy of the country which was based almost entirely upon private initiative in the selection, development, and use of farm lands. The program involves a major classification of land with reference to suitability for various types of uses; but, more important, it involves action facilitating the shifting of lands from undesirable uses into more suitable uses.

In both of these phases of the land-use program important farm-management considerations enter. Classification itself must be based on certain criteria or tests. Part of these tests relates to the public welfare arising out of its vital interest in the most economical use of the land itself; but part also relates to the providing, on a most economical and adequate basis, for the publicly financed means, such as roads, schools, and other facilities, for public service. Other tests, equally important, center in the farm economy itself. No use of land is desirable either from the social or individual point of view that does not provide for its users an adequate basis for the support of a good standard of living. This implies the necessity of farm-management tests. No land now in use in farming can be classified as too badly fitted to its present use without adequate consideration of whether or not, under the best systems of farming possible, it can support a successful farming program. Nor can other lands proposed for development for farming purposes be so designated without these same farm-management tests as to whether successful and adequate programs of farming can be derived to fit this type of land. It follows that in the program of land classification an adequate understanding of the considerations involved in the organization and operation of farms be made an important basis of the classification.

Relocation of Farm Families

The plans for action in this broad program involve very definitely the shifting of farmers from lands which may prove on examination too poor for their present use and the establishment of these farm families upon other lands which after due consideration may prove to be adequate for successful farming. This is the most vital phase of the program. Financial and personal considerations vital to the farm families being dealt with are involved. The agencies must be as sure as it is humanly possible to be that the new establishments will afford the opportunity which is intended. This should be tested by realistic considerations of what type or types of farming can be set up and operated in the new location, and what approximately, they may be expected to yield over a period in the way of money and living under a given projected economic situation.

For example, it has been proposed that in many parts of the country the conservation objectives in the way of preventing erosion and the building up and maintenance of soil fertility cannot be reached under the present system of farming, and that a considerable degree of consolidation looking toward larger farm units is necessary because the systems of farming which do promise better results in the direction of conservation, involving less grain growing and more hay and pasture, require larger areas for the support of a farm family. Closer examination in many areas reveals the probability that consolidation may not be feasible, that the remedies for the present difficulties must be sought in the direction of reorganization of cropping and livestock systems pretty much within the limits of the present size of farms. This all involves a most careful examination of the specific conditions within each given area from the point of view of the internal organization and management of farms.

C. L. Holmes, *Bureau of Agricultural Economics.*

Fineness and Maturity are Important Elements in Cotton-Fiber Quality

Strength of cotton fiber is an important factor in the strength of yarns and fabrics, although in the past its importance may have been overemphasized. It is generally less recognized that fineness and maturity of fiber are also important elements which materially influence the strength and other properties of the manufactured products.

Fineness refers to the width or the cross-sectional size of the fiber. This differs greatly among fibers of American upland cotton (fig. 30). Methods of measuring fiber fineness generally involve determination of either the so-called "diameter" (in the case of cotton fibers the "ribbon width"), or of the weight per unit of fiber length (approximately proportional to the average area of cross section of the fiber wall). In general, the latter determination is the more advantageous as the resulting measure is more nearly comparable with that for yarn fineness.

Maturity, on the other hand, refers to the fiber-wall thickness, or, more accurately, to the ratio of actual wall thickness to the maximum wall thickness that is possible if the cotton fiber were permitted to reach its maximum growth. Figure 31 shows American upland fibers of varying thickness of walls. It will be evident that due to different

degrees of fineness, actual wall thickness may vary for the same degree of maturity.

Fineness has long been recognized as an important element of quality in wool, silk, and more recently, rayon. It has not received the same recognition in the case of cotton. Possibly the close relationship

FIGURE 30.—Variations in fineness of fibers from American upland cotton. a, very fine mature fiber; b, fine mature fiber; c, medium mature fiber; d, coarse mature fiber. × 475.

between fiber fineness and staple length in cotton made the distinctive effects of these two properties less noticeable, since the longer staples generally meant finer fibers. The distinction was demonstrated by studies in which long-staple sea-island cotton, which possesses the greatest degree of fineness of any cotton, was cut into shorter lengths to simulate $^{15}/_{16}$- and 1-inch cottons of natural growth which are nor-

mally less fine. The 22s yarn spun from the 1-inch staple cut from this sea-island cotton showed an average skein strength of 146 pounds, a figure 51 percent higher than the average of a large number of American upland cottons naturally of this staple length and 27 percent higher than the strongest yarn ever manufactured from this staple length group in the spinning laboratory of the Bureau of Agricultural Economics.

FIGURE 31.—Variations in maturity of fibers from American upland cotton. a, very immature or thin-walled fiber; b, immature or thin-walled fiber; c, mature or normally developed fiber; d, abnormally matured or over-thickened fiber. + 475

The relationship of fiber fineness to length, however, holds only in a general way. Fineness of fiber has been found to vary materially from fiber to fiber of the same length, and from length to length of the same sample; it varies also with variety, soil, and growth conditions of the plant.

Why Fineness is Important

Fineness is important (1), because it determines the pliability of the fiber; that is, its ease of bending. Anyone who has examined yarns or fabrics made of fibers such as sisal, hemp, jute, and horsehair recog-

nizes their stiffness and coarseness and their general lack of adaptability and usefulness for certain purposes. For example, cloth made of such coarse fibers is not very suitable for clothing; it is heavy, harsh, and irritating to the skin. With increasing coarseness of fibers, rigidity and stiffness increase much more rapidly than does the size of the fiber. For example, for a given shape of fiber if the size is doubled, the rigidity and stiffness is approximately quadrupled. If the size is tripled, the rigidity is increased nine times. Thus fineness, as measured by the weight per unit of fiber length, has a magnified influence on the flexibility of the fibers and presumably also on the softness and flexibility of yarns and fabrics made from them.

Fineness of the fiber is important (2), because it determines the average number of fibers in yarn of given count and in turn the yarn strength. This is because the count or size of a yarn is based on the weight per unit of length and a definite length always contains a definite weight of fibers. Therefore, the finer the fibers, the greater the average number in sections of the yarn. The average number of fibers per section of yarn seems to influence yarn strength in three ways: (1) Through their greater flexibility, the finer fibers, when twisted, have greater binding power and the frictional potentialities can be used to greater degree. (2) A given number of fine fibers will make a finer yarn than the same number of coarse fibers. In the illustration above cited of the short-staple cottons made artificially from sea island, the $1\frac{5}{16}$-inch cut fiber could be spun easily into 60s yarn of very good strength, an achievement not previously duplicated, so far as is known, with cottons of this natural staple length. Frequently cottons of $1\frac{1}{8}$ or even $\frac{3}{16}$ inches in staple are spun into 60s yarn only with difficulty. The success of the results with the sea island was undoubtedly associated with the larger average number of fibers in the section of yarn than would have been present in the usual cotton of $1\frac{5}{16}$-inch staple length. (3) The surface substance of the fibers seems to be stronger than the interior substance, due to a "skin effect", and consequently the finer fibers, having proportionately more surface, should contribute greater strength to the yarn.

Fineness of cotton fibers is dependent on two major factors. One of these is the natural or inherited tendency of the fibers. Just as some breeds of horses are naturally larger than other breeds, so some species and varieties of cotton have naturally larger, coarser fibers than other species and varieties. For example, sea-island cotton belonging to a different species than the usual American upland varieties has naturally a finer fiber. It is entirely probable that the natural fineness of cotton fibers may be materially altered by breeding.

Growth Factors in Fineness

The second factor that determines the fineness of cotton fibers is that of growth. All factors such as soil, moisture, plant food, climate, and the like, which affect plant growth may be expected to influence also the thickness of the fiber wall. This is the effect of maturity on fineness. During its first 25 to 30 days of growth a cotton fiber elongates rapidly but its walls remain very thin. The type of growth then changes and during the next 25 to 30 days the length changes but little, but the walls thicken by increase of their secondary deposit. If this second period of growth is arrested, or if the climatic conditions restrict it, the fiber will not produce as thick a wall as it otherwise would

have done. If only a small amount of secondary deposit is laid down, the wall will be thin and the fiber relatively immature and fine. However, if conditions of growth are favorable, deposition of cell-wall substance will continue and the wall will become thicker and the fiber relatively more mature and coarser. Relatively fewer of the well-developed mature fibers will be required in the cross section of a yarn of given size, than of the lesser developed, immature fibers.

Although cotton fibers from varieties that normally produce medium or coarse fibers may be fine as a result of immaturity alone, this type of fineness is not necessarily advantageous from the standpoint of ease of spinning and quality of yarn. Too great fineness from this cause may introduce distinct difficulties into the spinning processes, and contribute to nep formation and to unsatisfactory dyeing properties of yarn and fabric. Thus, while a given degree of fineness corresponds always to the same average number of fibers in a yarn of given size, there is a qualitative difference in fineness that depends upon the thickness of the fiber walls. Because of the flattened form of its cross section, an immature fiber should be, theoretically, much less rigid or stiff than a mature fiber of the same wall cross section. Perhaps this explains the seemingly greater tendency for thin-walled cotton fibers to form neps as compared with thick-walled fibers.

From the theoretical standpoint and assuming identical composition, it might be assumed that a yarn made from immature fibers should possess the same strength as one made from mature fibers, fineness and other factors being the same. Or, if the greater flexibility of the thin-walled fibers is advantageous, the yarn made from immature fibers might be even the stronger. Limited observations indicate that this relationship is by no means simple and that considerable work will have to be done before the relationship of fiber maturity to yarn strength can be determined.

ROBERT W. WEBB and CARL M. CONRAD,
Bureau of Agricultural Economics.

FOREST Cover Proved a Controlling Factor in Flood Prevention

Man's mistreatment of the soil or of its natural forest or other vegetative cover as a cause of increasingly destructive erosion has been convincingly pointed out by studies recently conducted by the Forest Service in California. In these studies large soil tanks and $\frac{1}{40}$-acre plots in the mountains produced evidence that vegetation not only obstructs and retards the run-off of surface water, but also, by means of the leaf litter, and the action of the roots, keeps the topsoil so porous that a large proportion of rain water percolates continuously into the soil to join underground supplies. Litter-covered soil was found to absorb 5 to 10 times as much water as that absorbed by bare soil. Run-off was just the reverse—10 to 30 times as great from bare soil as from litter-covered soil. Generally 100 to 1,000 times more soil was swept away from bare soil plots than was eroded from forest-covered plots, and the rate of erosion increased as the intensity of rainfall increased.

When these results are applied to field conditions, the conclusion is that gentle rains, if well distributed through the season, cause little or no damage on newly burned areas, since they do not bring sufficient water at any one time to produce erosive run-off. Heavy rains, how-

ever, with an intensity of 1 inch or more per hour even though of brief duration, quickly puddle the surface soil, seal the soil pores, and start a rapid process of gully erosion. When this stage is reached, the excess water, unhindered by the usual chaparral cover with its accompanying carpet of leaf-litter, rushes down the barren slopes gathering up soil and rock fragments in ever-increasing size and volume until it reaches the bed of the stream. There the accumulated flow is soon swelled to a raging torrent, sweeping all before it, scouring the channel, snapping trees from their roots, plucking huge boulders from deep embedments, and finally surging forth upon the valley floor in great destructive waves of mud, debris, and boulders.

In southern California, where the mountains are covered with an "elfin forest" of highly inflammable chaparral, frequent forest fires and the characteristic heavy rainstorms of the winter season are re-

FIGURE 32.—This Montrose cottage is one of the 400 homes wrecked by the New Year's flood from the fire denuded watershed. The great gully in foreground carried away lawn and garden.

sponsible for numerous highly localized "burned area" floods. On the last day of 1933 there occurred in the Verdugo Creek watershed of Los Angeles County a flood which, because of the urban development in its path, was the most tragic and destructive single flood since the white man came to California.

A storm of record volume, beginning on December 30, a little more than a month after a severe forest fire had swept the mountain slopes above the valley and reduced their chaparral cover to ashes, poured 12 inches of rain upon the steep and barren slopes within a period of 56 hours. The ensuing mud flows reached their climax at midnight on New Year's Eve and swept through the towns of La Crescenta, Verdugo, and Montrose in numerous streams with such force that boulders weighing from 20 to 50 tons were carried thousands of feet and deposited on the city streets. In each stream path suburban homes were wrecked and their gardens either gouged away by deep gullies or buried under mud and boulders (fig. 32). In the small resi-

dential valley of La Crescenta 34 persons were swept to their death, and property, including more than 400 homes, was destroyed or damaged to the extent of $5,000,000 (fig. 33).

Such torrential floods are usually reported as having been caused by a cloudburst, regardless of the condition of the watersheds from which they issue, and in the absence of adequate data it is difficult to prove the true causes. In this case, however, a study of rainfall, run-off, and erosion throughout the storm area was immediately undertaken by the Forest Service and Los Angeles County flood-control authorities, and information obtained that permitted comparison of storm results in the La Crescenta area with those in the surrounding territory. It was found that the rainfall was remarkably uniform over a foothill and valley area approximately 20 miles wide by 50 miles long. Some 30

FIGURE 33.—Boulders weighing 60 tons each deposited on a street of La Crescenta by the New Year's flood from Dunsmere Canyon.

stations in the area measured an average rainfall of 13.03 inches, while the average on the burned watershed was 12.56 inches.

Run-off Greater from Burned Area

The peak run-off of water in streams from the burned area was conservatively calculated at 500 cubic feet per second per square mile, plus at least an equal volume of solids, making a total flow of 1,000 second-feet per square mile of watershed (fig. 34). In striking contrast, the simultaneous peak flow from the well-forested Arroyo Seco watershed, contiguous to the burned area, was only 58 second-feet per square mile, although rainfall in the Arroyo was 14.85 inches, or more than 2 inches greater than in the burned area. In the San Dimas Experimental Forest, 20 miles east of La Crescenta Valley, several well-forested unburned watersheds yielded peak flows averaging only 53 second-feet per square mile from 10.8 inches of precipitation.

FIGURE 34.—Dunsmere Creek, ravaged by flood from the burned area. Line of boulders near the building indicates extent and force of the torrent. All trees were torn from the stream banks, and rock-mattress check dams were swept from its bed. Man stands near the remains of one of the wire-bound dams. Compare with figure 35.

Enormous Erosion from Burned Area

Surveys showed that 659,000 cubic yards (more than a million tons) of soil and boulders were caught in debris basins or deposited on the Crescenta Valley floor, in addition to unknown quantities of lighter material carried to the ocean. These figures are more significant in that the burned area of 7 square miles comprised only one-third of the Verdugo Creek drainage basin. With ample allowance for material scoured from channels beyond the burn, this shows an erosion rate of

FIGURE 35.—Arroyo Seco Creek, undamaged by storm run-off from forest-covered watershed adjacent to the burned area. White line shows high-water mark of the New Year's storm. The water, being clear and controlled, was harmless. Compare with figure 34

116273°—35——14

at least 50,000 cubic yards per square mile of burned watershed during the storm.

In the unburned watersheds, however, erosion debris caught by reservoirs of the experimental forest amounted to only 52 cubic yards per square mile. Erosion measurements from Arroyo Seco were not obtainable, but forest officials reported that the high water of that creek was practically clear and that the small amount of silt which it carried came directly from the gullying of a newly-built highway in the canyon. The condition of the creek bottom after the storm (fig. 35) verifies this observation and indicates that erosion rates in the Arroyo Seco must have been very similar to those in the San Dimas area.

Forest Fires Must be Prevented

These records show that removal of the forest cover by fire increased the run-off rate of the heavy New Year's storms more than eight times the normal, and accelerated the rate of erosion nearly a thousand times, raising it from a trifling and completely harmless amount to quantities of enormous destructivenss. The La Crescenta burn was only 7 square miles, but in Los Angeles County alone there are 1,300 square miles of mountain area subject to fire and capable of building up disastrous floods. A considerable amount of developed property in the county has been safeguarded by dams and other costly flood-control structures, but outside the protected sections property to the value of $300,000,000 is still menaced by fire and flood.

Leading engineers of southern California have joined with foresters in the following conclusions:

(1) The native brush cover in the mountains of California affords a natural control against excessive run-off and destructive erosion.

(2) The La Crescenta disaster resulted from denudation of the watershed by the November fire, rather than from the heavy rainfall.

(3) The continued effectiveness of flood-control reservoirs requires the prevention of excessive debris deposition therein; this can be economically accomplished only by a good cover of vegetation on the watersheds.

(4) The total benefits deriving from the natural cover of southern California mountains are such that no reasonable expense should be spared to protect that cover from fire.

C. J. Kraebel, *Forest Service.*

Forest Removal Affects Local Climate and Growing Conditions

Any modification of climate caused by the removal of the forest is of chief interest to man through its effect on the vegetation which follows the forest, particularly that part of the vegetation ultimately used for food or for construction. On lands unsuited for agriculture it is the second-growth forest—the source of our future wood supply—which must survive the local climate as modified by the removal of the original forest.

Comparison Between Wooded and Denuded Areas

Studies made by the Allegheny Forest Experiment Station in the woods and in cut-over areas nearby show to what extent the climatic agencies which profoundly affect the growth of vegetation, such as

light, wind, moisture, and temperature of air and soil, may be modified in restricted localities by removing the original forest.

Degree of light intensity is the most obvious difference between a forested and treeless area. The extent to which sunlight is screened off by the tree tops depends, of course, upon the age and species which make up the forest. Rarely, however, will shade by itself prevent the establishment of tree seedlings. On the other hand, lack of shade in a cut-over area may cause the soil to become so hot and dry that young seedlings cannot survive. Soil-surface temperatures as high as 150° F. have been recorded in the cut-over areas when surface temperature in the woods nearby was less than 100°.

Such extreme soil-surface temperatures usually occur when the air temperature is high, and air temperature is usually higher in the cut-over areas than in the woods. While maximum air temperatures alone seldom cause death or injury to tree seedlings, they do result in greater transpiration from leaf surfaces and in greater evaporation from the soil. As a result, the plant must draw water more rapidly from a soil that is becoming increasingly dry. Eventually the demand exceeds the supply and the plant dies.

Soil moisture must, of course, be replenished by some form of precipitation and, whether or not the forest affects precipitation over wide areas, it certainly affects the amount of water which reaches the ground within itself. Studies by this station have shown that on the average about 15 percent of the precipitation is intercepted by the tree crowns. This is, however, more than offset by the decreased evaporation from the soil in the woods and the readier penetration of the precipitation in forest soil. Furthermore, the far greater run-off of precipitation in the open causes a corresponding increase in soil erosion.

Both evaporation and soil moisture have been measured simultaneously in the open and in nearby woods during a 6-month period. The soil in the woods at 6 and 12 inches below the surface had on occasions twice as much moisture as that in the adjoining cut-over area, and evaporation in the woods over a period of 6 months was only 63 percent of that on the adjoining cut-over area.

Evaporation is retarded in the woods by decreased wind movement. At one woods station used in this study, wind velocity dropped from 3.0 to 1.6 miles per hour in May after the leaves came out; above the tree tops the decrease was from 11.6 to 8 miles per hour from April to May. Because this modification of wind velocity benefits adjoining cleared areas or fields, trees as windbreaks have become a necessary part of agriculture in some sections of the United States.

A decrease in wind velocity due to the presence or absence of a forest will in turn modify air temperature and minimize the effect of extreme winter temperature. Minimum air temperature may be in itself a critical factor in the death or survival of vegetation. For a period of 1 year the minimum air temperatures in the woods and in an adjacent cut-over area were compared. During this period the mean minimum was lower in the open than in the woods every month in year, with an actual minimum for each month of 8° or 10° F. lower. On one occasion vegetation surrounding the instrument shelter in the open was killed by a late June frost, but there was no evidence of frost damage in the woods nearby.

Another station was located in a "forest pocket" on a cut-over area which, until a few years ago, was heavily forested. The earlier pres-

ence of dense woods was evidence that minimum temperatures here were never critical before the tract was logged, even though they were lower than in the immediate vicinity. Since the cutting, such extreme minimum temperatures have occurred here during the growing season that the young trees coming up on the site have repeatedly been damaged by frost. It is now possible that this area will remain for a long time without a vigorously growing young forest because of the complete removal of the old forest.

Partial Cutting Suggested as a Remedy

It has been learned by actual measurements that even in a very open forest the various factors which, when combined, make up the climate of that locality will be less extreme than in totally denunded areas in the same vicinity. Hence, if the best all-round growing conditions for a future timber crop are to be maintained, it is apparent that the forest should be only partially removed. The rather open forest which results from this type of cutting will certainly have a favorable influence on the local climate.

O. M. Wood, *Forest Service.*

FOREST-TAXATION Reforms Dependent on Correction of General Tax Defects

The burden of taxation upon any group or any person is the resultant of two factors: (1) The total amount that must be raised by taxation, and (2) the methods by which this amount is distributed among the taxpayers. The amount is fixed when the appropriate legislative body, State, county, or town, determines the functions to be performed by the government and the cost thereof. The second is a matter of equitable distribution, involving methods of taxation and the effectiveness of tax administration.

Taxation of American forests is principally in the hands of the States and their local subdivisions and is imposed chiefly through the property tax. If the taxes borne by forest property are burdensome, the cause must be either that the total tax levies are heavy or that forest property is discriminated against in the structure or administration of the taxing machinery. Giving full recognition to such unfair discrimination against forest property as does exist, the investigations of the forest taxation inquiry clearly indicate that the predominant cause of heavy timber taxation today is the heavy cost of State and local government.

The cause of next importance is faulty administration of the property tax. The theory of the property tax is beautifully simple—distribution of the cost of government in proportion to the value of taxable property possessed by each contributor. In its operation, however, the American property tax has developed defects so serious as to call down the reproaches of virtually all tax students, at home and abroad. Assessment is the heart of the property tax, and it is chiefly the imperfect functioning of assessment that has made the property tax a farce in so many places. In almost any rural district, can be found parcels of property assessed at 2 or 3 times their true value, while others get off at a quarter or less—and some escape the assessor's notice entirely. Obviously, to the extent that assessment fails, the

property tax becomes a travesty of justice, and there is evidence that forest property is frequently thus discriminated against.

Remedial Measures Available

The heavy cost of State and local government and the imperfect administration of the property tax thus furnish the principal causes of the unduly burdensome taxation under which forest property in many parts of the United States is suffering. For the first cause the remedy is obvious—reduction of the cost of State and local government, particularly in the forest regions. For the second, reform of assessment, as well as improvement in other phases of property-tax administration, is indicated. Limitation of space does not permit detailed discussion of these remedies. Appropriate measures are available, however, whose adoption promises good results.

Reforms along these lines are not confined to owners of forest property. If those who are seeking less burdensome forest taxation look merely for some special device to shift the burden, the natural opposition of all other groups is encountered; it is forest-tax reform against the field. But all taxpayers are sufferers from the basic causes which make forest taxes heavy. And, when all taxpayers see this and work for the clearly indicated remedies, results will come.

Successful attack upon the forest-tax problem along these lines would go a long way toward its solution. But not quite the whole way. There is a third ground of complaint, arising from the inherent nature of the property tax, which affects forestry in particular. This is a technical matter, and it will be sufficient here to state the conclusion that the property tax, by discriminating against any use of land which involves deferment of income, tends to increase the area of land that cannot be used economically, under private ownership, for growing forests.

This reference to deferment of income is not intended to obscure the importance of progress toward organizing forests so as to produce a regular annual income. When such condition has been attained, forestry suffers no peculiar disability under the property tax, and there is no special forest-tax problem. But the annual-sustained-yield forests would still suffer, with all other classes of taxable property, the adverse effects of taxation resulting from heavy costs of government and faulty administration.

Proposed Methods of Forest-Tax Reform

Escape from the inherent discrimination of the property tax against the use of land for growing timber must be sought in tax measures relating especially to the forests. Past experience with such special forest-tax legislation has not developed a sound plan. Therefore the forests taxation inquiry, after a searching study, both theoretical and factual, has formulated and recommended three practicable methods of modifying the property tax. These plans are based, it is believed, on correct principles. They are fully described in a comprehensive report of this inquiry.

It has been suggested that the solution of the forest-tax problem requires (1) reducing or at least limiting the cost of State and local government, (2) perfecting the assessment of the property tax, and (3) providing some modification of the property tax which will adjust

it to the peculiar nature of the deferred-yield forest. Either of the first two reforms would accomplish its full effect whether the third were adopted or not. The third reform, on the contrary, while doubtless worth securing by itself, would be of limited usefulness, and might even fail entirely of beneficial results, if nothing were accomplished in the way of reducing governmental costs or enforcing the strict observance of sound assessment methods. It should always be remembered that no special forest-tax plan is to be regarded as the solution of the forest-tax problem. It is simply one—and probably the least important one—of the three parts which make up the whole program of forest-tax reform.

FRED ROGERS FAIRCHILD, *Forest Service.*

FORESTRY Extension Work Aids Farmers to Earn Profits from Woodlands

Through a broad program of education and practical assistance, farm-woodland owners have been aided in solving their numerous forestry problems, which range from reclaiming eroded land and thinning young stands of trees, to cooperative marketing of timber, fur, and other products.

Farmers own approximately 150,000,000 acres of woodland and produce enormous quantities of timber products for commercial and home needs. Because of lack of information regarding forestry practices applicable to farm forests, thousands of acres of valuable timberlands have been cut without regard to conserving the stand or to growing another crop of trees, or wildlife. In some sections stripping the land and degrading the stand by removal of the better trees have left cut-over lands of little value and without prospect of another timber crop for many years.

To assist farmers in meeting this situation, the State extension services, with the cooperation of the Federal Extension Service and Forest Service, are carrying projects in farm forestry. The Federal Extension Service cooperates with the States in the employment of extension foresters, who serve as project leaders. During the past year 33 States and 2 territories employing a total of 39 extension foresters carried on forestry programs with farm owners through county agent organizations. Demonstrations in the woods (fig. 36), meetings, and many other educational means have been used to assist farmers in their adoption of improved timber practices and to encourage them to handle their woodlands on an economic basis that will fit in with good farm management and wildlife conservation. Invaluable cooperation has been given by State forestry departments, experiment stations, and other public agencies and by private agencies.

The farm woods have been an important factor in helping farmers to meet their timber needs and to supplement the farm income. During the present emergency farmers have used their woods as a staff to lean on when other crops have failed to produce an adequate cash return. Although timber markets have been at a low ebb, much has been accomplished in assisting farmers with the marketing of farm-timber products. Marketing problems have been studied by extension foresters. Lists of buyers and marketing reports have been issued, marketing activities have been organized, and literature on marketing methods has been distributed. Assistance has been given in the coop-

erative marketing of pulpwood as developed with groups of farmers in Virginia and North Carolina. The cooperative marketing of Christmas trees in New Hampshire has been a profitable venture for farmers. Encouraging of industries and schools to use wood as fuel has led to increased sales by farmers. Forward steps have been taken in Connecticut through a study of markets and the establishment of standard grades for firewood.

The production and sale of maple sugar and sirup products has been an important line of work in New Hampshire, Vermont, New York, Ohio, and other producing States. The adoption of standard grades of maple products and the use of proper labels have been urged by extension workers, and have been accepted by many producers.

FIGURE 36.—A timber-thinning demonstration on a farm in Virginia. The use of proper cutting methods to provide timber products for the farm and to maintain the productiveness of the woods is an important phase of farm forestry.

Thinning, Weeding, and Pruning

Improvement of farm woods through thinning, weeding, and pruning has been a project in 22 States. The economic aspects of this work have been emphasized. Assistance in woodland management has been given on approximately 9,000 farms, involving more than 898,000 acres of woodland. Many of the operations on these lands now serve as demonstrations in the community. The construction and repair of buildings with timber cut from farm woods have been reported by 1,042 farmers. Other work of similar type, such as saw filing and improvement of small sawmills, has been progressing in Pennsylvania and North Carolina.

The farm woods have been an aid in the conduct of relief activities such as supplying work and fuel. In one State a firewood relief project was organized. Approximately 25 towns followed plans for using farm woods to furnish labor and fuel for men on relief rolls. The program, which was started as an extension project, has been taken over by the State relief agency. In other regions assistance has been given in barter deals in which farmers traded corn for fence posts. In some sections firewood has been used as a medium of exchange.

Forest-Tree Planting

Forest-tree planting is the most widely accepted project in farm forestry and has been carried on to some extent in all of the 33 States and 2 Territories having extension foresters. During the past year approximately 22 million trees were distributed to farmers by the State forestry agencies. A large percentage of these trees were planted through the assistance of extension foresters and county agents. Planting demonstrations, general meetings, extension schools, circular letters, and bulletins have been used to spread information on forest-tree planting and to give a clearer understanding of its problems.

The States of Pennsylvania and New York continue to lead all others in the number of trees planted on farms with approximately 4,500,000 trees being distributed in each State. In the Midwestern and Plains States the protection of farmsteads and crops from severe winds, dust storms, and "blow-outs" in fields, is an important problem. Interest has been maintained in these sections, but fewer trees have been planted because of reduced farm incomes. Nebraska has continued to lead other States in its territory with 3,231 farmers making windbreak plantings. The establishment of windbreaks for the protection of livestock and to provide cover for desirable wildlife is a new feature of the Nebraska program. Another type of work which has attracted interest is the establishment of windbreaks in California to protect citrus crops. Windbreaks as a factor in economical production are gaining in favor in that State. Puerto Rico stands out prominently with a record of 2,083,844 trees distributed to farmers for wood production, coffeetree shade, and establishment of windbreaks for grapefruit orchards. Other kinds of plantings that are gaining considerable headway are: Slash pine for turpentine and pulpwood production, now under way in Georgia; black locusts on gullied farm lands, now being planted quite extensively in Tennessee and several other States. The stock used by farmers for forest planting was for the most part supplied by State forestry departments. Rapid advancement in this work can be expected as the result of the emergency conservation program in erosion control which is now in progress in a number of the central Mississippi Basin States.

Interest in 4-H forestry has been maintained on a satisfactory level. During the year a total of 15,489 club members, or 11,553 boys and 3,936 girls, took part in such work as tree identification, woodland judging, tree planting, timber estimating, and woodland improvement.

Junior forestry camps for 4-H club members and leaders have been held in several States. Also short courses for 4-H members and others interested in forestry have been used to stimulate practical pursuits and leadership.

W. K. Williams, *Extension Service.*

Forests Vital to Social and Economic Welfare of Many Communities

The forests have played a vital role in the history and progress of the United States. The wealth, tradition, and spirit of many of our States are largely grounded in their forest wealth.

One-third of the land area of the United States is forest or potential forest land. In the rehabilitation of much of this area and in the wise

management of all of it so that it may contribute its maximum value to the permanent support of industries and communities, lies the answer to some of our most pressing national problems. The forests are a renewable resource. Through wise management and use, which is the essence of sound forestry, they may be made a continuing source of wealth.

No more outstanding example of the vitally important relationship of the forest resource to the social economy of a State can be cited than that of West Virginia.

Two hundred years ago West Virginia was 99 percent forest land. Except for a few rocky cliffs and old fields where the Indians had probably raised corn, and a few hundred acres of "glades" on top of the Alleghenys, the entire State was one vast unbroken forest, one of the finest stands of timber in the country. Abundant rainfall, good soil, and altitude made West Virginia a favored land for the growing of forests. The earliest settlers, who began to come into West Virginia about this time, were real woodsmen, who knew how to get their living from the wealth of the woods. Their descendants today have inherited those sturdy qualities that living in close association with the native forests have bred.

These early pioneers rapidly penetrated into all parts of the State. They made small clearings and occasional roads, their homes were hewn from the timbers of the forests, and their farms were carved out of the dense woods.

By 1840, the geographical center of population of the United States was located at Canaan Mountain in what is now the Monongahela National Forest. In 1863, when West Virginia attained statehood, the great seal adopted by the State reflected its forest background. The design showed a farmer carrying a woodsman's ax, and on the reverse was shown a wooded mountain. This seal was prophetic of the great part the forests were to play in coming years in the rapid growth and upbuilding of the State.

Hardwood Surplus in West Virginia 40 Years Ago

Forty years ago at the World's Columbian Exposition in Chicago, West Virginia proudly assembled an exhibit of its forest wealth and claimed, with figures to prove it, that she had a greater amount of hardwood timber in her forests than any other State in the Union. Governor Wilson at the time enthusiastically declared: "I have the statistics to prove that West Virginia has more of a surplus of hardwoods than any other 10 States in the Union." A description of the State's forest resources prepared at that time said:

> A thorough examination of the forests will show that nearly or quite one-half is still uncleared, and by far the greater portion of the uncleared land is still in virgin forests where the ax of man has never found its way and where the magnificent specimens of forest growth stand thickly side by side and reach a towering height which gives the forests of the State their splendid values. The splendid forests of thousands of acres of untouched timber, where nearly every kind of timber found in the North American Continent may be seen, where trees grow to such size that ordinary methods will not suffice to handle them, and where the forests are so thick that the light of day scarcely penetrates their shade, and pathways must be cut before the ax-man can find room to work, are yielding annually many million feet of timber which has gone to nearly every country on this earth and given the West Virginia timber a world-wide reputation. No

finer oak or poplar grows beneath the sun than that which may be found in any county in the State.

That was 40 years ago.

About that time the exploitation of West Virginia's forest wealth was getting into full swing. This same report also said:

Some 10 or 15 thousand men are now engaged in one way or another in timber, lumber, sawmills, or kindred business. Great armies of choppers have, with their axes, made inroads in the woods throughout the State, and every rise brings out of every stream, however small, its quota of logs or ties or other timbers. New sawmills are building every day, new territory being opened, and it is safe to say that now the total cut of all the mills is no less than 500 million feet a year.

And note what was happening.

But a short time is required to change a forest to a farm, to bare the mountain tops and clear their sides, to turn the timber into ties, or work them into lumber or its products. Unlike some other sources of national wealth, the quantity and quality of timber of our State depends on no contingency, and its value must increase.

Industries Based on Forest Wealth

As was said, that was written only 40 years ago. This was the period of tremendous development industrially and agriculturally, of expansion and of forest exploitation. Supported directly or indirectly by the forest wealth, industries sprang up and grew; forests and forest industries provided markets for farm products and outlets for farm labor, and agriculture expanded. In 1910 or thereabouts, when lumbering reached its peak in West Virginia, there were 1,524 sawmills in operation. The total lumber cut was more than 1⅓ billion feet. The population of West Virginia had increased from less than half a million in 1870 to 1,120,000 in 1910. The number of farms had increased from 39,000 to over 96,000. West Virginia ranked tenth among all the States in lumber production, and in hardwood production alone it was among the 3 or 4 leading States in the Union.

There was tremendous waste. Vast areas of the finest virgin timber in the East were logged off with the usual American prodigality. Fire ran rampant over the hills. Some of the choicest huge oak logs were cut and piled and burned to clear lands for farming; this land was in many cases poor farm land at best but ideal for timber growing. Fine logs were stripped for tanbark and left to rot on the ground. But the wealth of the woods was going into the building of a great State, and things were booming.

Today the picture has changed. Only a remnant of the virgin forests remain. Some 8 million acres of cut-over woods are reported to be in need of protection and rehabilitation; some 4½ million acres have been classed as devastated. From 1,524 in 1910, the number of sawmills in West Virginia declined to 338 in 1930. The total lumber cut dropped more than one-third; from 1,376,000,000 feet in 1910 to only 406,000,000 feet in 1930. A few years ago, one of the State's foresters reported 2,175 deserted lumber-camp sites. From 1909 to 1927, employment in the forest products using factories of the State fell off 21 percent. Farm land, as much as 100,000 acres in some years, has gone out of cultivation, much of it devastated by erosion. One of the State's leading lumbermen said a few years ago:

When we see our hillsides stripped of forests and turned into green fields, and then see the soil of the green fields washed down into the rivers, leaving the bare rocks, we cannot help a feeling of depression coming over us when we know that wealth has disappeared for all time.

Effects of Unwise Forest Exploitation

What does all this mean to the local community? In the Horton-Whitmer community in Randolph County, W. Va., forest exploitation began about 1894 when a lumber and pulp company started operations at Horton. When the mill was operating at capacity, on a double shift, its output was about 100,000 feet per day, and some 500 persons were employed in the mill, yard, railroad, and woods. In 1926, with the timber about gone, the company abandoned their operation. Another company carried on a few years longer, but everything was shut down by 1929.

A large number of families in that community were left without employment. Even now, 5 years later, most of these people have no occupation. There is some grazing, but only a small portion of the land is suitable for farming. And with no industry going on, there is little market for farm products. The one great natural resource of the region—the timber—is gone. There is no prospect of employment for a stranded population. Over 60 percent of the families are on relief.

To cite another example, Hendricks and Hamilton, in Tucker County, are in what not so many years ago was a district of virgin forest of fine cherry, poplar, walnut, spruce, and hemlock. From 1910 to 1920, the community had a population of some 4,000 permanent residents and several hundred transient workers; and several lumber companies, a handle factory, a tannery, 6 band mills, and 2 railroad yards were paying good wages and going strong. Today only one band mill is working and it has moved to another locality. The population has dropped to less than 200 families, and of these 135 families are on relief. The prospects for the immediate future are not bright. There is at present no industry nearby where they might be absorbed.

Even as early as 1911, a report to Governor Glasscock on the West Virginia geological survey showed declining forest-products industries in many counties. Kanawha County, it was said, was long a heavy lumber producing county, and Charleston, the State capital, ranked as the center of an enormous lumber industry. Millions of feet of logs and lumber and bark came down the Elk and Kanawha Rivers every year from the late seventies until about 1904. And then many of the mills began to be dismantled and moved to other States.

Ceremony of the Last Log

On the eve of the first Mountain State Forest Festival, held in West Virginia in 1930, a significant ceremony occurred at Mill Creek. It was the ceremony of the last log. For 50 years, great logs had been going into the mill at Mill Creek. One last log was left in the mill pond. It was floated to the incline. It went up, and in 60 seconds it had become boards, slabs, and sawdust. And then the steam went down. The band saw stood still, never to start again. The ceremony typified the death knell of a once thriving industry.

Such cases are not peculiar to West Virginia. The story of forest exploitation, of the "cut-out-and-get-out" policy, has been enacted throughout the country. Many a community, north, south, east, and west, now looks to its barren hills with the hindsight that is better than foresight and wishes it had used its forests more wisely.

But we need not despair of a remedy. The forest may be down but it is not necessarily out. With careful management, and adequate

protection, forest can be grown again. Further destruction by fires can be cut to a minimum by systematic and organized protection, backed by an enlightened public interest and support. The raw earth sores or gullies washed out on our hillsides by erosion can be healed by check dams and revegetation. The barren waste lands can be made productive once more by reforestation. And the remaining timber stands can be managed and harvested under a system which will make them permanently and continuously productive—a system which the foresters call sustained yield.

Notable Progress Already Made

West Virginia already is making notable progress in the protection and rehabilitation of her forest lands. The Monongahela Forest in West Virginia was in a way the starting point of the whole national-forest system in the East. A series of floods, culminating in the Monongahela River flood of March 1907, which caused a loss of some $100,000,000 in West Virginia and Pennsylvania, called the attention of Congress to the need of protecting this and other watersheds and led to the passing of the Weeks law for the purchase and forest administration of watershed areas in the East. Realization that public and private cooperation is needed over broad areas of forest to protect life and property and to assure continuity of economic and social values became widespread, and acquisition largely by purchase of more than 10,000,000 acres of land for national forests in the East followed. The Monongahela National Forest, with recent additions of 239,005 acres since June 9, 1934, under President Roosevelt's emergency forest purchase program, now has become one of the largest national forests east of the Mississippi. It has a gross area of 1,625,200 acres, of which 678,169 acres are already under Federal management.

The Monongahela National Forest protects part of the headwaters of four nationally important streams, the Monongahela, Potomac, Kanawha, and the James Rivers. In protecting these nationally important watersheds, the Monongahela Forest is performing a service extending far beyond its boundaries, a service felt throughout the Middle Atlantic States, through the Ohio and Mississippi Valleys, even to the Gulf of Mexico.

Besides developing efficient fire control and facilities for planting and management for sustained-yield forest production as a continuing source of raw material for local industries, the Forest Service has built many roads and trails, and has developed camping facilities in the highlands, preserved game and wildlife resources, and in other ways taken important steps to make the Monongahela National Forest a permanent resource for the people. The forest contains many outstanding scenic attractions, which the new Forest Service roads are making accessible, bringing many tourists into the State.

One measure to bring the Monongahela National Forest back to productivity and greater watershed value and to reforest many thousand acres of denuded land has been the establishment of a forest nursery at Parsons. This is one of the largest Forest Service nurseries in the United States. The nursery now contains 10,000,000 seedlings of all ages. It is being developed to reach in 2 years an annual production of 5,000,000 trees ready to plant.

Destination of Future Monetary Returns

Of the future monetary returns from this national forest, 25 percent will go directly to the counties in which it is located, for the support of county roads and schools. An additional 10 percent will be allocated each year for the building and upkeep of roads within the forest.

Including the 1,500 C. C. C. workers engaged on improvement work, the Monongahela National Forest in 1934 was able to give full-time or part-time employment to more than 5,000 men.

As the new forest returns to the hillsides, new wood-using industries will return to the section, giving still more employment and support to the communities. And this employment will be stable and permanent, because the forests will be managed for sustained yield. The recreational and wildlife resources of the forest, husbanded by careful management, will bring other new business to the section.

Thus the Monongahela National Forest is contributing, and will contribute to a much larger extent in the future to the development of a permanent, sustained, and prosperous community life. Nearly 150 national forests, scattered throughout the United States, will similarly contribute to local and national welfare.

The ceremony of the last log was symbolic of the end of an older era. The age of pioneering and exploitation is past—and it was a great age, but a short-sighted one. Locally and nationally, our need is now for restoration of our basic resources and for the establishment of conditions which will lead to a more normally developed American civilization—a civilization based upon permanence, upon stabilized communities and industries, upon planned and wise use of our resources and wealth. In this national program for social and economic reconstruction and rehabilitation, intelligent and planned use of our forest land must play an important part.

F. A. Silcox, *Forest Service.*

Fruit Darkening Can be Prevented by New Process

The tendency of many fruits and vegetables to darken at freshly cut surfaces is well known. Slices of apple, for example, by the time they have been left in the air long enough to dry, are usually a deep brown. This is a serious loss to the fruit drier, because such dark-colored products are not received well on the market. It is impossible to prepare from them an article of food which even remotely resembles the original fruit in respect to color.

Only one method has ever been applied which satisfactorily prevented this discoloration of the cut fruits while they were being dried. This consists of treating the freshly-cut fruit with sulphur dioxide (the gas evolved from burning sulphur). The fruit dried after sulphuring has a good color, but retains considerable amounts of the gas. Its export to foreign countries is restricted, since the food laws of many European nations do not permit food to be sold which contains more than a very small amount of sulphur dioxide.

Research was begun recently by the Bureau of Chemistry and Soils with the object of finding a satisfactory method of preventing the discoloration of the cut fruit (while it was kept or being dried) which

could replace the sulphuring process. The investigation started with a study of the enzyme reactions that caused the darkening of cut fruits. It was successful in producing these reactions in the test tube where they could be investigated very thoroughly. As a result it appeared that several classes of substances ought to possess the property of inhibiting the discoloration. Of these, the great majority were poisonous, but one class seems to be harmless, because it occurs in many foods. This is the class of sulphydryl-containing amino acids and peptides, typified by glutathione and cysteine.

Experiments with these substances were made on apples of a variety which darkens rapidly when cut (Paragon). The results showed that only very small amounts of these substances were necessary to completely inhibit the darkening of the apples.

The application was simple; the sliced apples were sprayed with a very dilute solution (0.1 to 0.25 percent) of the chemical and then placed in a drier where they were handled as in an apple-drying plant.

In technology these chemicals are as yet rare, although if there were any great demand for them they could probably be made cheaply enough. The investigators knew, however, that a substance related to those with which they had experimented is often found in pineapple juice. The next step was therefore to spray the fruit with pineapple juice which contained this substance. The effect of the pineapple juice was weaker than that of the chemicals, but the result was quite satisfactory.

Fruit dried after spraying with pineapple juice is, of course, covered with a thin film of dry residue from the juice. This does not seem objectionable but it may be avoided by first fermenting the juice, removing the yeast and alcohol, and using the greatly purified liquid in the spraying process.

Another application of this finding is that cut-up fruit, such as apples, apricots, bananas (if they are not too ripe), peaches and probably many others can be stored in the cold for as long as 24 hours without turning dark if they are immersed in pineapple juice or if a small amount of one of the chemicals mentioned is added to the juice which covers them. In the event that the pineapple juice is not already acid a little lemon juice should be added to it, since the darkening is more easily prevented in acid solutions.

A. K. Balls and W. S. Hale,
Bureau of Chemistry and Soils.

Fur Scarcity Through Overtrapping Impends; Conservation Needed

Not long after Columbus landed on the western shores, the traffic in North American furs began. Since that time it has continued until the fur resources of the country have been shamefully exploited. The persistence of any species in the presence of the almost overwhelming forces that tend toward its extermination is a striking natural phenomenon, and so far as the layman is concerned it completely conceals the decrease that is in reality taking place, creating the impression that there is no present or threatened danger of extreme shortage. It seems unreasonable to believe that the people of this country are not interested in perpetuating our valuable resources in fur animals, but very few seem to realize that the restoration and conservation of the fur

species are as much matters for their concern as is the preservation of game, forests, and other natural resources. And not all who recognize that the supply of American raw furs is in jeopardy have a clear conception of the implications of the existing situation.

The total annual catch of fur animals in the United States was at one time conservatively valued at $65,000,000, which was greater than Canada's $18,000,000 and Soviet Russia's $35,000,000 catch combined. There are various reasons for the United States appearing as so large a producer. The great Mississippi River Basin is, as it always has been, an ideal section for wildlife, with ample cover, unfailing water supply, and plenty of food. Skunks, muskrats, and many other fur animals are found there in extremely large numbers. Although for several generations trapping has been carried on throughout the entire Mississippi Basin, in some parts of it for three centuries, the smaller fur animals in some parts have done well, chiefly because of their fecundity but also because their larger natural enemies have been, for the most part, exterminated in the region. Another reason for the great annual catch of American furs has been that there are more trappers here than in many other countries. The population of the United States is greater per square mile than that of Canada or Siberia, and the trappers are well equipped for their work in woods and waters.

Fur Decrease Causing Apprehension

Many years ago a decrease in the fur supply was indicated by the smaller relative numbers of the more valuable pelts reaching the markets, including marten, fisher, mink, and beaver. Now, the decline in the quantity of fur pelts of all kinds is causing uneasiness and apprehension among fur merchants throughout the United States and Canada. Twenty years ago the periodic decreases might have been attributed to destruction of forests by ax and fire, indiscriminate drainage of swamp land, and encroachment of civilization. The isolation that once afforded protection to many fur animals has been ended by the recent development of the automobile and airplane. The constant decline during the past decade, however, is directly attributable to overtrapping and to the staging of so-called "vermin" campaigns for destroying fur animals that obtain part of their food from birds classed as game. Another factor not without significance is the indifferent attitude of many State game commissions toward the protection of fur animals.

It is clear that the present system of fur-animal conservation has not proved effective. The responsibility of conserving and protecting the various fur species rests chiefly with the States, but the problem is national in scope, and the seriousness of the situation calls for a coordinated Federal policy based on scientific findings. There is hope—through cooperative effort of Federal and State agencies, the fur trade, and the general public—that at least a part of this wasted heritage will be restored, thereby assuring a continuing natural supply of fur animals, with permanent occupation for trappers and for those engaged in manufacture and the many ramifications of the fur trade.

Need for Protection of Breeding Stock

There can be little doubt that when the fur business regains its normal status in American industry it will face a marked shrinkage in the supply of American raw furs. There would follow, if experience means

anything, a price increase that would send every farm boy to the village for more and more traps. And then there might ensue a period not merely of scarcity but of actual lack. It was so with the buffalo; it was so with the passenger pigeon; it will be so with certain fur species—unless the fur trade itself takes a hand in protecting the breeding stock, and unless coordinated efforts, Federal and State, are made for conservation.

FRANK G. ASHBROOK, *Bureau of Biological Survey.*

GAME as a Farm Crop Emphasized by Agricultural Adjustment

The reduction of planted areas in the United States has emphasized anew the possibilities of game as a farm crop. Millions of acres of submarginal land have been retired from production, and replacement crops are being sought for the areas that formerly contributed to farmers' surpluses. Game management under these conditions offers itself as an opportune side line to general agriculture.

The sale of hunting privileges has proved practicable in various parts of the United States. In Texas landowners licensed to sell shooting rights have charged as much as $4 a day, or 25 cents an acre under leases; and in Ohio 28 farmers on an 11,000-acre area under central management realized a revenue of $500 during the fall of 1931 by issuing 200 hunting permits. Similar practices have been followed in other States, and the farmers have realized additional profits by providing hunters with meals, lodging, and various services.

The prospects for encouraging the increase of wildlife—for profit as well as for general enjoyment—have thus seemed so important that the Bureau of Biological Survey has prepared Farmers' Bulletin 1719, Improving the Farm Environment for Wildlife, and has mimeographed recommendations on planting for wildlife in the Corn Belt and in the Cotton Belt. It has also prepared exhibit material for use at agricultural expositions and sportsmen's shows.

Two factors in increasing the abundance of wildlife, the Bureau has pointed out in its publications, are of essential importance—cover and food. Both require special consideration by the farmer who wishes to develop the wildlife on his premises. Food, of course, is indispensable, but cover must receive first attention.

Wildlife cannot persist on land without adequate shelter from enemies and protection for nesting. For the majority of the small forms of wildlife, cover means low, dense vegetation, some of which should be tangled, or stiff and thorny, so that in time of need the pursued can dive into it to escape the pursuer. Weedy fields, for instance, provide fairly good concealing cover, but they are much improved for wildlife by the presence of rose or berry patches, plum thickets, or honeysuckle tangles.

Uses of Planting to Improve Cover

Planting to improve cover can well be made to serve a double purpose by using food-producing vegetation, and a triple use by carrying it on where erosion control is needed. Greenbriers or catbriers, blackberries, dewberries, grapevines, Virginia creeper, and Japanese honeysuckle—to mention a few examples—have a threefold usefulness—as soil binders, as food producers, and as cover. Choice of plants will, of course, depend on their suitability for particular regions.

The increase of game cannot be achieved without the expenditure of effort on the part of the farmer, but the efforts are more than amply repaid, and the necessary information on methods can readily be obtained from the Bureau of Biological Survey or other agencies. Game management also creates conditions that attract other desirable forms of wildlife, beautify the farm, and add to the pleasures that come from the presence of birds and other living things. Besides adding a few dollars to the income and utilizing areas retired because of the necessities of agricultural adjustment, game management thus provides for an enrichment of farm life.

H. P. Sheldon, *Bureau of Biological Survey.*

Game Management and Forest Protection Are Related Tasks

Many professional foresters, formerly concerned almost exclusively with timber production, now realize that game and fur bearers are also valuable products of forest lands and that the forest fauna constitutes an important national resource. This realization is an important development in the history of wildlife in the United States. At the time of the discovery of North America, large and small game in abundance ranged throughout the length and breadth of the continent, but with the clearing of forests for farms and the occupation of grasslands for agriculture or grazing, the animals disappeared or resorted to the fast-diminishing forests that remained.

As the land was cleared for cultivation in the East, the logging process, taking about all of the merchantable timber, extended successively from area to area nearly throughout the region. The removal of the forest canopy, however, has resulted in a growth of small trees, berry-producing shrubs, and other vegetation that affords tender browse within easy reach of deer, fruit for bears and other wildlife, and sustenance for rabbits and wild turkeys. The forest setting has thus been prepared for the restoration of these species on a scale far exceeding such game populations in the same areas in former times.

In Western States most of the game of the open country has disappeared or has taken refuge in the national forests or national parks. Elk and mule deer, for instance, forced down by winter snows in the higher mountains along the backbone of the continent, formerly migrated far out to the surrounding plains, where the snow was light and feed abundant. The winter ranges they once knew, however, are now utilized as farms or for the grazing of domestic stock, and the game must remain at the higher elevations, exposed to the dangers of cold and starvation. Thus wildlife developments throughout the country have emphasized the importance of the remaining forest areas.

Regulation of Game Abundance

Experience has shown how readily game can be restored where food is abundant, and where killing by man or by predatory animals is effectively controlled; it has also demonstrated the vital importance of checking numbers in time to prevent the destruction of forage. The regulation of game abundance, therefore, becomes an important part of the routine of forest management. Definite plans must be based on

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field studies of numbers and game range-carrying capacity, with due consideration for any domestic stock or agricultural or other possibly conflicting interests. Such game management means that the seasons for hunting, the bag limits, and the sex ratio should be fixed each year in accordance with local conditions. It also means that hunting licenses must be limited to unit areas, instead of being applicable for use almost anywhere in a particular State. Such control of licenses is imperative if the depletion of game is to be prevented in one unit area while a mounting surplus is left unchecked in another. Similar principles should be applied in the taking of fur animals, which are likely to be reduced to the verge of extermination.

Owing to varying and often complicated conditions, game management brings into prominence many local forestry problems. The suitability or carrying capacity of a forested area for game depends largely upon the stage of forest succession, and as younger timber stands contain far more small growth available as forage than do those approaching maturity, logging or thinning operations as carried on by the Civilian Conservation Corps under competent direction are usually beneficial for wildlife.

Effects of Overbrowsing

Deer especially, but elk, antelope, moose, and other animals, under what may be regarded as normal conditions, are dainty feeders, nibbling the leaves and tender shoots of plants of many kinds, taking a little food here and a little there. The cropped branches are rapidly renewed, and there is little or no harm to the general vegetation. But some plants, more palatable than others, are gradually killed through overbrowsing by an excessive number of animals. These animals must then resort to the less palatable plants, and the progressive destruction of foliage, often becoming apparent at first only in spots, may extend to the entire forest. Overbrowsing by game animals is often undetected by the ordinary observer until a line marking their highest reach is clearly evident. Wherever such a line is seen, it is an indication that a serious situation has already been allowed to develop. The repeatedly defoliated plant stems cease to put out leaves, and if their tops can be reached the trees or shrubs are killed or dwarfed in growth. If this process is continued, the inevitable result is starvation for the game, and this is usually accompanied by serious damage to forest reproduction. Even such small game as the various kinds of hares, rabbits, and squirrels may assume considerable importance, as these animals, especially the snowshoe hares, are subject to cyclic fluctuations, and where overabundant may become injurious to forest reproduction.

A striking illustration of the importance to both the game and the forest of disposing of surplus animals when the forage-producing capacity of a game range is threatened is afforded in the rise and fall of the mule deer of the Kaibab Plateau, in northern Arizona. This area was maintained as a refuge on which the number of deer mounted rapidly to a peak, resulting in serious injury to forest reproduction, permanent impairment of the forage supply, and disaster to the deer through starvation.

Forest Reproduction Sometimes Threatened

In other parts of Arizona the overproduction of game has led to surpluses that threaten the forage supply and seriously injure forest reproduction. White-tailed deer in the Santa Catalina Mountains have greatly increased in recent years, and forest damage is resulting. Elk reintroduced on the Sitgreaves National Forest have become too numerous and destructive. Even the antelope, reduced in Arizona a few years ago to a point where extermination was imminent, have increased to thousands in the Coconino National Forest and adjoining territory. The competition of domestic stock with the game animals has so reduced the normal forage supply that the antelope are forced to browse on junipers and other trees as high as they can reach, leaving them completely defoliated to a sharp line such as is seen on overutilized deer ranges. On areas closed to hunting, the mounting numbers of the antelope, like those of the deer, have been coincident with the control of predatory animals, mainly coyotes, instituted primarily in the interest of domestic stock production.

The deductions to be drawn from these, and from cases that might be mentioned in other States, east and west, should have a wide application in similar forested areas. The conservation of forest game and fur-bearing animals involves principles of wildlife management and adjustment that are comparatively simple, but a well-informed public is necessary if the inertia and prejudice that tend to paralyze constructive effort are to be overcome. Both wildlife and timber are major forest resources, to be fostered in proper relation to each other.

E. A. Goldman, *Bureau of Biological Survey.*

Grain Standards, Revised and New, Promulgated for the 1934 Marketing

Revised standards for wheat, corn, barley, oats, Feed Oats, Mixed Feed Oats, rye, and grain sorghums were promulgated by the Department on March 31, 1934, as the result of a 4-year study of grain-marketing practices and of the use and application of the various United States standards for grain. New standards for flaxseed, Mixed Grain, and malting barley produced east of the Rocky Mountains also were promulgated. These revised and new grain standards were made effective under the Grain Standards Act of 1916, for the marketing of the 1934 grain crops.

Objectives Sought in Making Revisions

The Department's investigations showed that many changes in grain production, handling, marketing, and processing practices have taken place in the grain industry since the original United States grain standards were promulgated. The revised and new standards are designed (1) to modernize the standards so that they will conform, as closely as is practicable, with present-day grain production, handling, and market practices, and with users' requirements, (2) to establish certain new classes and grades representative of users' requirements, thereby to promote definite market quotations according to quality, (3) to effect certain improvements in the requirements of the so-called "contract grades" so as to raise the level of quality represented by the

grades No. 2 and No. 3, thus to make deliveries under futures and other contracts more acceptable to grain users, (4) to impose restrictions on objectionable and uneconomic mixing, such as the mixing of durum wheat and damaged "other grains" in the so-called bread wheats, and (5) to establish new standards for malting barley produced east of the Rocky Mountains, flaxseed, and mixed grain for the use and benefit of the grain industry as a whole.

Moisture Factor in Wheat Standards

In the official wheat standards that were in effect prior to July 2, 1934, moisture content was one of several factors for the determination of numerical grade. In hard red winter wheat, for example, grade No. 1 permitted a maximum moisture content of 13.5 percent; grade No. 2, 14 percent; grade No. 3, 14.5 percent; each of the grades No. 4 and No. 5, 15.5 percent; and any wheat containing more than 15.5 percent moisture was included in Sample grade. A car lot of hard red winter wheat, for example, which met the requirements of grade No. 1 according to the factors of test weight per bushel, damaged kernels, foreign material, etc., but which contained 15 percent moisture, was graded No. 4.

Many grain producers and shippers believed that such wheat was unjustly graded and sometimes unjustly discounted in price, under the standards in effect prior to July 2, 1934, because moisture content should not be considered as a factor of permanent intrinsic quality comparable in importance with such factors of quality as test weight, damaged kernels, etc., for the determination of numerical grade. Although moisture content is a measure of the hazards in transporting and storing wheat, it can be easily modified through mixing and drying operations.

The revised standards provide a new method for the grading of wheat according to moisture content. A maximum moisture content of 14 percent is permitted, for example, in each of the 5 numerical grades in the revised standards for hard red winter wheat. If a lot of hard red winter wheat contains more than 14 percent but not more than 15.5 percent moisture, it is assigned the numerical grade to which it is entitled according to all the grading factors except moisture, and the word "Tough" is added to the grade designation. The word "Tough" indicates that such a lot of wheat contains more moisture than is permitted in the straight unqualified numerical grades. Thus, hard red winter wheat that contains 15 percent moisture, for example, but that otherwise meets the requirements of grade No. 1 and of the premium subclass Dark Hard is graded No. 1 Dark Hard Winter, Tough, whereas wheat of the same kind and quality would have been graded No. 4 Dark Hard Winter under the old standards. Similar methods, but with different moisture limits in some cases for the special grade Tough, were adopted also for the other classes of wheat, and for rye, barley, oats, Feed Oats, Mixed Feed Oats, and Mixed Grain.

Although the price of grain is not determined by grades alone, the grades indicate qualities that command premiums or bring discounts. In the matter of moisture content the new grade No. 1 Dark Hard Winter, Tough, for example, describes the milling and storage qualities of wheat containing excess moisture but otherwise of No. 1 quality much better than did the old grades of No. 3 Dark Hard Winter or No. 4 Dark Hard Winter. These changes in the method of grading

should prove of use to grain producers and country shippers in emphasizing the utility values of such wheat.

Restrictions on Objectionable Mixing

Experience in the use of the old grain standards showed that certain objectionable mixing practices prevailed under these standards. An outstanding example of mixing that served no useful purpose for either producers or millers, and that caused objections from foreign buyers of American wheat, was the mixing of durum wheats into hard red winter wheat within the maximum limitation of 5 percent that was permitted in grade No. 2 of the old standards. On numerous occasions when the price of durum wheat was materially lower than the price of hard red winter wheat, there was extensive mixing of this character in wheat of the commercially important grade No. 2 Hard Winter, whether for export or domestic delivery.

A study of wheat receipts in the important grain markets showed that less than 0.5 percent of the market receipts of hard red winter wheat of country origin contained natural admixtures of durum wheat in quantities greater than 2 percent, and that such mixtures were found in only a few counties in the entire hard red winter wheat producing area. These data showed plainly that the maximum limitations for "wheats of other classes" in the old standards for hard red winter wheat were greater than necessary to take care of natural admixtures, and served often as an official tolerance of objectionable mixing.

The revised standards lower the percentages of durum wheat permissible in grades Nos. 1, 2, and 3, of the bread-wheat classes, thus restricting objectionable mixing and improving the milling quality of these grades of wheat. Curtailment of this objectionable mixing practice should benefit the entire wheat industry. The mixing of durum wheats into the bread wheats, as done under the former United States wheat standards, was of no benefit whatsoever to producers, and at times was injurious to their interests, because it lowered the quality of large lots of elevator wheat below the level commonly found in country-run wheat of the same grade. The hazard of depreciated quality, therefore, was inherent always in elevator deliveries of wheat of the important contract grade No. 2 Hard Winter, for example, and under such conditions the tendency was to depress the futures price for wheat of that grade. This reacted unfavorably on the cash prices paid to farmers for country marketings of wheat, because the futures price unquestionably exerts an important influence on cash prices.

New Grades for Oats of High Test Weight

In the purchase of oats from producers at country points, it nas not been customary to pay higher prices for oats of high weights per bushel than for oats of relatively low weights per bushel, although oats having high test weight are of relatively superior value. The old standards provided no grades for oats of high test weight. Thus, oats having high test weight per bushel were included in the same grades with oats having a relatively lower test weight per bushel, and no definite current market quotations by grade for oats of high test weight per bushel were issued at the terminal markets.

A study of the market receipts of oats during the past decade showed that a material volume of market oats tested more than the 32

pounds per bushel required for grade No. 1. The Department believes that the large part of the oat crop that is of superior value according to the important factor of test weight per bushel should have definite recognition in grain inspection and marketing. Thus, the revised standards for oats provide special grades for Heavy and Extra Heavy oats. These special grades, when applicable, are made a part of the complete grade designation, as for example: No. 2 Extra Heavy White Oats, thus emphasizing by grade the superior value of such oats as compared with other lots of white oats that meet the requirements of grade No. 2 but that do not possess the premium quality of high test weight per bushel, and which, therefore, are graded and designated merely as No. 2 White Oats.

New Standards for Malting Barley

The use of barley for malting purposes has increased materially in the United States because of the increased consumption of malt beverages and the manufacture of malt products used in malted milk, bread making, and candy making. No United States grades for barley of malting type had been established heretofore. Barley of the important commercial grade Special No. 2 Barley under the old barley standards was often entirely unacceptable for malting purposes because barley within that grade might include objectionable types of barley for malting purposes, might be of nonuniform kernel size, or might be nonmellow in character.

Barley of malting type has been sold almost entirely by sample in accordance with buyers' fancy only, and regular and definite market quotations for malting barley by grade have not been possible. At country points the barley crop usually was just "barley" so far as the producer was concerned, and in the absence of definite grades for malting barley, country buyers found it difficult to correlate country prices for barley of malting type with terminal market prices for barley of this type.

The Bureau of Agricultural Economics made a thorough study of those physical characteristics of barley that are indexes of malting quality and that lend themselves to practical application in inspection procedure, and as a result of this study new standards for malting barley produced east of the Rocky Mountains were promulgated and made effective July 2, 1934. When these standards become fully incorporated into futures trading and other grain-market practices, they should serve as a useful base for current market quotations on malting barley by grade. This market service will provide producers and country shippers with more definite information than heretofore available on malster requirements and on prevailing terminal market prices for barley of malting type.

The Farmer's Interest in Grades

Although the examples of grain standards revisions and of new grain standards given in this article comprise only a partial illustration and explanation of the revised and new grain standards that were made effective in 1934, they should serve to illustrate the fact that the Department is seeking constantly to harmonize the standards with market practices, to increase the usefulness of the standards as measures of quality in commercial transactions, and to effect improve-

ments in market practices through the use of equitable standards that will reflect benefits to grain producers and shippers.

Sound practical grain standards based on research and experience are of vital importance to farmers. Although market prices for grain are governed in general by the size of the grain supply and by the demand of domestic and foreign users of grain, the grain standards, nevertheless, have an important bearing on the distribution of the total market value of the grain crops among the various groups that produce, handle, store, and process these crops. The grain grades also have an important bearing on market premiums and discounts for grain of varying quality, as well as on the reflection of such premiums and discounts to the producers and country shippers of grain.

It is of importance to grain growers that the grades should represent the requirements of grain users to the fullest extent commensurate with the practical conditions of grain inspection. When grades are descriptive of and correlate with the requirements of users, widespread trading by grade rather than by sample is facilitated. This is of importance to farmers because, under such conditions, current and definite market quotations by grade are possible and keep producers and country shippers well advised at all times of market requirements and prices. Under such conditions, prices and trading practices at country points tend to follow the true course of the supply and demand situation at the terminal markets much better than when trading is done by sample only. It is also important that the grades correspond reasonably with production conditions so that an important commercial volume of grain may be comprised within each of the important commercial grades.

These principles have been adhered to by the Department in its grain standardization work and in meeting its responsibilities under the Grain Standards Act. The Department believes, therefore, that the revised and new grain standards of 1934 mark another forward step in the usefulness of grain standards and in the improvement of grain-marketing practices.

EDWARD C. PARKER, *Bureau of Agricultural Economics.*

GRASSHOPPER Control Accomplished Under Cooperative Program

Farmers, business men, bankers, the public in general, and not a few scientists, heretofore skeptical of man's ability to combat the grasshopper menace, have had their doubts dispelled by the highly successful control campaign conducted in 1934 by the Department of Agriculture in cooperation with 18 of the Western States. In addition to demonstrating that crops could be saved from destruction by grasshoppers, it was also proved that probable grasshopper abundance could be predicted months in advance of their hatching and that very close estimates could be made of the quantity of poisoned bait needed for control. This marks a decided advance over former methods of planning and initiating control measures after the grasshoppers had hatched and started to injure crops. Such delayed action usually resulted in severe crop damage before control measures could be applied, frenzied attempts to obtain bait materials, and a poorly organized campaign which was only partially effective.

Beginning in 1930 and continuing through 1933, grasshoppers, benefiting by favorable weather conditions, steadily increased over the Great Plains States. During this period sporadic attempts at control were made by individuals and counties, and in 1932 an effective campaign was conducted in Minnesota, where the State appropriated $250,000 for control operations; but no unified effort was made for control over the entire region, and as a result each year showed a larger area infested and greater crop losses.

Starting in 1931, the Bureau of Entomology in cooperation with State entomological agencies conducted fall surveys which have proved remarkably accurate in predicting grasshopper abundance the following spring. The results of the 1933 survey indicated that the worst grasshopper outbreak in the history of American agriculture could be expected in 1934, and that 15 million acres would need poisoning if crops were to be saved.

The President transmitted to Congress an estimate of appropriation for the Department of Agriculture amounting to $2,354,893 for cooperative control of an anticipated outbreak. Congress passed the appropriation bill carrying this item, and the money was made available on March 29, 1934. The Department established a grasshopper-control office at Minneapolis, Minn., let contracts for bait materials and bait mixing, and started shipping prepared bait to the States in less than 3 weeks after the money became available.

State Action Undertaken

Each State desiring Federal aid in grasshopper control organized a State control committee, appointed a State leader, and prepared a petition to the Secretary of Agriculture stating its need for aid and the cooperation the State was prepared to give in conducting the campaign, and giving an estimate of the quantity of bait required. State leaders called conferences of county agents, who returned to their counties to conduct meetings in every community and township where grasshoppers were expected in injurious numbers. Thousands of such meetings were held, and as a result of this educational campaign farmers in the most heavily infested States were fully instructed in control operations.

The grasshoppers hatched from 3 weeks to a month earlier than usual owing to a remarkably mild winter and spring in the Great Plains. Hatching began late in April and early in May and was far enough advanced by May 10 for poisoning operations to be started in some States. Grasshoppers not only hatched in predicted numbers in the 8 States that were surveyed in the fall of 1933, but also appeared in destructive numbers in other Western States, and by June Government poisoned bait was being shipped to 18 States.

Nearly all the grasshopper bait furnished by the Government was mixed dry in mills and shipped in cars to the county where it was to be used. Approximately 10 gallons of water was added to each 100 pounds of dry bait before it was scattered. A total of 78,370 tons (3,900 carloads) of bait was furnished by the Government to the following States: Arizona, California, Colorado, Idaho, Iowa, Kansas, Michigan, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Wisconsin, and Wyoming.

From the beginning excellent kills were obtained with this bait. In most areas cultivated crops were the only source of green food, because of the drought, and grasshoppers hatching around the edges of crop fields invaded them within a few hours after emerging. Since crops lacked moisture for rapid growth, they did not have sufficient vegetation to delay the invasions. As a result the young grasshoppers advanced into the fields several rods each day. Hatching continued on warm days over a period of several weeks, with new hordes invading crops after each hatch. Under such conditions control could be obtained only by repeated applications of bait around the field margins and for several rods into the fields.

Campaign Generally Effective

In spite of these difficulties, crop losses were held to a minimum and there was no sign of letting up until early in July. By that time it became apparent over much of the area that the severe drought had injured crops to the extent that few of them would be worth harvesting. With no crops to save, some farmers gave up, but even then the majority showed surprising determination and continued the campaign in order to prevent an outbreak the following year. In all areas where crops were worth harvesting, the campaign was remarkably effective. Notwithstanding adverse conditions for poisoning and the presence of more grasshoppers than in any previous outbreak, these insects caused no serious crop losses in any of the States.

Throughout north-central Montana, which suffered extensive losses from grasshoppers in 1933 and which was the most heavily infested area in the Great Plains in the spring of 1934, weather conditions were favorable, and the best grain crop in years was produced with only slight injury from grasshoppers. Farmers in this area generally agree that it would have been entirely devastated by grasshoppers if control measures had not been employed. Good crops were also grown in the Red River Valley in North Dakota and Minnesota, where lack of control measures would have resulted in total destruction of crops on hundreds of farms. No accurate estimate of the value of crops saved from destruction by grasshoppers in 1934 can be made, but control leaders from 18 States in conference at Denver, Colo., at the close of the campaign stated that it would exceed $50,000,000. If drought conditions had not destroyed crops after they had been saved from grasshoppers, the saving would have been several times this figure.

The success of the campaign is due largely to the spirit of cooperation and whole-hearted enthusiasm for the work displayed by all persons and organizations connected with it. Railroads granted reduced rates and other concessions which enabled the Government to save several hundred thousand dollars, which was used in the purchase of materials instead of in freight payments. The agricultural departments of many of the railroads furnished men with experience in grasshopper control to aid the State extension services in educational work. Elevator companies provided free storage of bait at numerous rural points, and bran producers frequently sold to the Government when their regular trade was demanding more than could be supplied.

As a result of the 1934 campaign, crop losses from grasshoppers for the current year have been largely prevented, and grasshopper populations have been reduced to the lowest point of the last 4 years.

J. R. Parker, *Bureau of Entomology and Plant Quarantine.*

HAMS Stored in Tight Cloth Bags Keep Well for Use in Farm Home

Wrapping smoked hams in parchment paper and then storing them in flyproof muslin bags proved to be the most desirable method when hams are to be kept for several months at ordinary air temperatures, according to the results of a 3-year test just completed at the Animal Husbandry Experiment Station, Beltsville, Md. The method prevented infestation from skippers and excluded part of the air and light that hasten development of rancidity in the fat. Most farmers who butcher hogs during cold weather for their year's supply of meat are faced with the problem of keeping the meat sound and palatable through the summer without the use of refrigeration. As a result, farm-stored hams often deteriorate in quality or are lost entirely through infestation of insects.

The general quality of these wrapped and bagged hams (fig. 37) was not consistently different from those that had been hung up unwrapped and unbagged nor from those that had been shaded with black cloth, or bagged and painted with various protecting preparations such as lime or yellow wash. There was some difference in shrinkage in storage and in the results from the cooking tests conducted with some of the hams, but the differences were not material except for the damage caused by skippers in the unwrapped hams.

FIGURE 37.—Method of wrapping a smoked ham in parchment paper (right) preparatory to bagging. The ham shown at left has been bagged and painted with yellow wash to prevent infestation by skippers.

Skippers got into the storeroom in spite of all precautions and infested the hams, a fact which demonstrated the advantage of protecting the individual hams even though the storeroom was supposedly flyproof.

Results of Various Methods of Storing

Some of the 210 hams used in the investigations were coated with a mixture of pepper and molasses. These coated hams possessed a flavor after aging that was considered to be sweeter and slightly more pungent than the others. There was, however, some loss caused by skippers; except for that fact this method would be a highly satisfactory one for those persons who like the flavor of pepper.

Other hams were buried in crushed rock salt, in wood ashes, and in oats. All these lots were musty in flavor and undesirable. The meat buried in crushed rock salt absorbed too much salt during storage and the lean portion became undesirably dry and tough. Storing smoked meat in wood ashes, salt, or oats is apparently not satisfactory in a climate as humid as that of Washington, D. C., and vicinity.

Hams hung unwrapped in a dark, imperfectly ventilated homemade meat-curing box, such as is frequently used for curing meat in the South, aged as satisfactorily as those hung in the open storeroom. No skippers gained entrance to this box, though that danger was always present when the lid was raised for an examination of the meat.

Hams made airtight by the use of heavy coatings of paraffin or stored in rubber bags all spoiled. Most of this spoilage was on the surface, but the meat was considered unfit for use.

Mold developed on all the hams regardless of the method of storage. During damp weather the growth was extensive and during dry periods much of it disappeared. The least mold was found on the unprotected hams hung in an open window where the air circulation was greatest. Mold did not damage the flavor of any of the hams except those that were buried in ashes, salt, or oats. In those cases a musty, moldy flavor permeated the entire cut.

All the hams used in these tests were from carcasses that had been chilled promptly after slaughter. The cold, trimmed, fresh hams were dry cured with a curing mixture of 8 pounds of salt, 2 pounds of brown sugar, and 4 ounces of saltpeter for each 100 pounds of meat. The meat was cured at a temperature of about 38° F. and 3 days' curing time was allowed for each pound of weight of the average ham. The cured hams were washed and smoked for 3 days at a temperature that did not exceed 110°. No smoked meat was wrapped or packed until it had cooled to air temperature after removal from the smokehouse.

The mean monthly temperature of the storeroom in which the smoked meat was kept ranged between 46° F. in February to 78° in July and August; the mean humidity ranged between 36 and 95 percent.

R. L. Hiner, *Bureau of Animal Industry.*

Hogs of Danish Origin Imported for Breeding Studies in This Country

Science is constantly exploring new opportunities of aiding the producer of agricultural commodities to conduct his business more efficiently and to meet the needs of a changing economy. In this connection animal and plant breeders are putting forth their efforts toward making available new types and strains or varieties that are superior in important characteristics. These efforts have included importations and subsequent studies with respect to adaptability, merit in comparison with present varieties and strains, breed improvement, and possible advantages from crossbreeding.

Value of Production Records

For a number of years the Department of Agriculture has recognized the advantages of selecting breeding animals of the meat-producing species on the basis of performance records. It was with the needs of the industry in mind, especially for a more effective method of selecting breeding stock, that the Department together with the Iowa Agricultural Experiment Station, recently became interested in studying Danish hogs and methods under American conditions.

Since the beginning of the present century the swine industry of Denmark has shown remarkable development. That country has shown the world the striking improvement that can be accomplished by well-planned, systematic testing methods, associated with good feeding and management. Denmark's valuable background of performance records in both economy of production and quality of product caused the Department and the Iowa station to obtain a number of Danish pigs, carefully selected, for such research purposes.

The most important influence in the development of the swine industry in Denmark has been the selection of breeding animals based on detailed breeding-center, testing-station, and bacon-factory records. This method of selection, supported by good methods of feeding and management, has resulted in the very efficient production of high-quality bacon of the type known commercially as Wiltshire sides.

The breeds through which this has been accomplished in Denmark are the Landrace and Yorkshire, with the former of much the greater importance. This breed originally consisted of 15 different families, the progeny of which have been studied through the years and only the more efficient ones maintained. Today, on this basis of actual performance, only 4 of the original families are regarded as of particular importance, 2 of these, the B family and the F family, meeting with most favor.

Landrace and Yorkshire Pigs Selected

Early in 1934 a swine specialist of the Department, representing also the Iowa station, selected in Denmark 8 boars and 16 gilts of the Landrace breed (figs. 38 and 39) and 2 boars and 4 gilts of the Yorkshire breed. Six of the Landrace pigs, 2 boars and 4 gilts, were from the Stabil line of breeding, Stabil being a highly regarded boar of the B family. Another group, 2 boars and 4 gilts, was from the most popular line (Stendys Mariendal) of the F family. The remaining 12 Landrace pigs were selected to represent varied lines of good breeding. The Yorkshire pigs likewise represented some of the best breeding in the country.

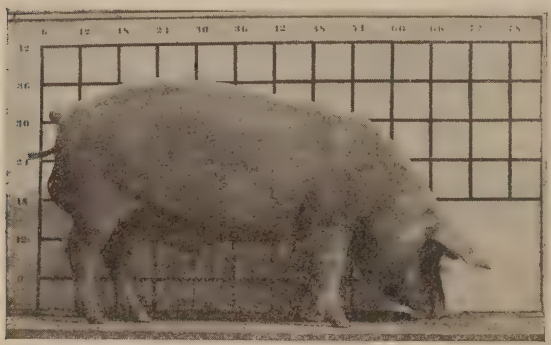

FIGURE 38.—A Danish Landrace boar, 12 months old, included in the recent importation. This boar is a grandson of Stendys Mariendal, a line of breeding highly regarded in Denmark.

The 30 pigs were assembled at Copenhagen and shipped to St. Croix, Virgin Islands, where they were held in quarantine to comply with the livestock sanitary laws of the United States. The importation was made into the United States in May 1934. After a further quarantine period of 7 days the pigs were shipped to the United States Animal Husbandry Experiment Station, Beltsville, Md., and 6 of the Landrace pigs, 2 boars, and 4 gilts, were sent on from there to the Iowa station at Ames.

Each of the pigs in the importation has a known background of prolificacy, feed-lot efficiency, and quality of product. In the investigations with these pigs, now in progress, one of the first considerations is whether the Danish lines of breeding will produce results in this country, comparable with the records under Danish conditions. In addition the studies outlined provide for comparisons with representative lines of breeding in leading breeds commonly raised in the United

States. A further phase of the program is the study of certain modifications of the Danish testing methods to determine their value for use in swine-improvement work in this country. Crossbreeding with one or more leading domestic breeds constitutes another important phase of the program. This will be done to determine the possibilities of combining the better characteristics of the foreign and domestic breeds, as they may be found to occur.

The importation was made with no thought of minimizing the merits of the American hog, but to compare these merits with those of selected strains of known efficiency from Denmark and also to combine superior qualities through crossbreeding. In view of the nature and scope of this study a number of years will be required to carry it to completion, although it is likely that it will yield interesting and helpful results in the near future.

FIGURE 39.—A Danish Landrace gilt, 11 months old, in the recent importation by the Department and the Iowa Agricultural Experiment Station. The length and smoothness of side and development of ham are especially noteworthy.

O. G. HANKINS and J. H. ZELLER,
Bureau of Animal Industry.

HORSE Disease, Known as Encephalomyelitis, Yielding to Research

A disease of horses and mules manifested by nervous symptoms has existed in various sections of the United States for many decades. The affection has been called cerebrospinal meningitis, forage poisoning, blind staggers, sleeping sickness, brain fever, Kansas-Nebraska horse plague, and other names.

Contrary to former beliefs that the disease resulted from spoiled feed and a variety of other causes, research by California investigators showed in 1930 that a specific virus is responsible. At that time it was proposed that the disease be called encephalomyelitis, signifying inflammation of the brain and the spinal cord, which is the actual condition.

Since 1930 the causative virus has been found to exist, in the West, in California, Nevada, Utah, and South Dakota, and in the East, in Virginia, Maryland, Delaware, and New Jersey. In addition, the disease has been diagnosed in other States. Strong experimental evidence indicates at least two types of virus, tentatively designated as "western" and "eastern", but the outward appearance of the disease is practically the same in both cases.

Usually there are three phases of the infection (figs. 40–42). In the first, which is often unnoticed, there is a mild indisposition generally accompanied by a rise in temperature. In the second phase, distinct

FIGURE 40.—Horse in early stages of encephalomyelitis, showing drowsiness and distortion of the upper lip.

nervous symptoms appear. There is either a loss of appetite or difficulty in eating and drinking. Water often runs from the nostrils when the animal attempts to swallow. Frequently there is grinding of the teeth and twitching of the muscles of the lips, jaws, or other parts of the body. The animal may become very drowsy and stupid, the head often hanging low. In other cases the animal walks incessantly, often with a swaying or stumbling gait. Sometimes the animal becomes very excitable and lunges about.

In the third and last stage, the horse falls to the ground where it may lie

FIGURE 41.—The same horse in a later stage of the disease showing extreme sleepiness with animal leaning against the stall wall.

quietly or make running movements with the legs. It often beats its head about violently, causing bruising. The functions of elimination may be retarded. The disease usually terminates fatally in cases that reach the third stage. At some time during the course

FIGURE 42.—Animal in the final stage of collapse with body supported by stall wall and nose resting on floor.

of the disease a staggering gait, sleepiness, and a yellow discoloration of the eye membranes are almost always to be observed.

Course of the Disease Rapid

Usually the disease runs a rapid course and in cases that terminate fatally, death ensues in from several hours to a few days after the onset of symptoms. Recoveries have ranged from as low as 2 percent in some outbreaks to as high as 70 percent in others. Animals that survive, however, are likely to sustain permanent damage to the brain or spinal cord, a condition causing the so-called "dummy" or otherwise impaired animal.

Although research has not yet revealed definitely how the infection commonly spreads, results thus far indicate that blood-sucking insects, particularly mosquitoes, are probably an important cause. Outbreaks have been observed to be most common during the summer and early fall months when insects are prevalent. With the coming of frosts the disease tends to disappear. Outbreaks also are most common in low-lying, moist regions which are favorable to insect life. There are other possible means by which the disease may spread, such as inhaling or eating infectious material, especially if there are abrasions in the mouth cavity.

Methods of Preventing Losses

Pending the results of further research, the following procedure should be helpful in preventing losses from encephalomyelitis. Isolate

affected animals in screened quarters, where possible, or if not feasible, prevent insect bites by use of repellent sprays. Segregate the normal animals in similar quarters; horses not at work should be stabled during the season of insect prevalence. The use of insect repellents and nets on horses in the field is to be encouraged. Animals dead of the disease should be disposed of promptly by burning or burying deeply and the stables, sheds, or corrals used by the affected animals should be thoroughly cleaned and disinfected. A specific antiencephalomyelitis serum is now commercially obtainable and available experimental data appear to warrant its use in the prevention, as well as treatment, of the disease. The immunity induced by the serum appears to be of short duration and for that reason, to be effective, the serum treatment must be repeated at intervals.

Cool, comfortable quarters, protection of the animal against possible injury by the use of adequate bedding or slings, permitting the animal to drink fresh water at all times and supplying small quantities of succulent feed are advisable. In all cases treatment should be administered by a trained veterinarian and other control measures should be under his supervision. Unguided home treatment, such as promiscuous drenching or other administrations which may be suggested by unqualified advisers, is to be discouraged since it usually lessens the animal's chance of recovery. Failure to observe the precautions outlined may result also in a spread of the infection.

L. T. Giltner and M. S. Shahan,
Bureau of Animal Industry.

Irrigated Land Needs Drainage to Correct Excessive Salinity

The dissolved salts that occur in irrigation waters constitute an important cause of injury to irrigated lands. These dissolved salts tend to accumulate in the soil and subsoil as the water of the soil solution in the root zone is absorbed by crop plants or dissipated by evaporation. Their injurious effects may operate in either of two ways; they may accumulate in the soil solution until that solution becomes so concentrated as to be directly injurious to crop plants, or with increasing concentration there may be reactions of base exchange between the salts of the soil solution and the soil itself by which the physical condition of the soil is impaired. Such reactions may cause the soil to become deflocculated and relatively impermeable to the movement of water into and through it.

There are two primary sources of the salinity found in irrigation waters. The larger part of such salinity is derived by the solvent action of water operating on the rock material of the earth's crust during the processes of soil formation. The other and smaller part comes from the earth's interior, whence the constituents rise as gases mixed with superheated water vapor. As these gases approach the surface they condense and blend with subsurface or atmospheric waters in which the salt constituents are dissolved.

These dissolved salts, whether derived from soil weathering or magmatic sources, move with the waters of solution. In the arid regions where drainage is deficient and evaporation is high they may be precipitated, as the result of evaporation, in the soil or in

sediment that is deposited in valleys by erosion. Most of the naturally saline soils of our arid regions have been formed in this way.

By similar processes soluble salts have been deposited in sedimentary soils or rocks formed during earlier geological periods. As such salt-bearing soils or rocks become exposed by erosion or penetrated by percolating waters, their salts pass into solution and thus contaminate the surface streams or underground water supplies that may be used for irrigation.

Irrigation waters that contain the least salt are those that come directly from the rain or snow that falls on watersheds of hard rocks. Such rocks when weathered into soil yield comparatively little soluble material to the drainage waters. Where the rocks of the watershed are of softer material, such as shale, the processes of soil formation yield larger quantities of soluble salts that are carried away in the drainage, whether through surface or underground channels. It is the desert areas of watersheds or drainage basins that contribute the most salt to irrigation supplies. These desert areas yield comparatively little water, but the soils are often highly saline because of infrequent leaching; and when an occasional rain falls even over a restricted area, the water dissolves the accumulated salt and carries it to the drainage stream or into some natural underground reservoir.

A Man-Made Source of Salinity

The sources mentioned above are the more important natural sources of salinity. There is another source to be considered that may be thought of as man-made or artificial. This comprises the irrigated lands that are located along stream channels. Some of these lands are naturally salty because the soil was deposited by the action of water containing dissolved salts, and as the water evaporated the salts were left in the soil. But when these lands are irrigated a large part of the water applied as irrigation is evaporated from the soil or absorbed and transpired by crop plants. This water that is evaporated or transpired leaves its salt burden in the soil. Not infrequently irrigation water may contain a ton or more of dissolved salts in each acre-foot, and under arid conditions as much as 2 to 4 acre-feet of irrigation water may be applied to each acre of cropped land.

Thus it will be evident that irrigated lands on which saline irrigation waters are used become potential sources of salinity in respect to the tributary streams. In order to prevent the impairment of these lands through the accumulation of injurious concentrations of salts in the soil solution of the root zone it is necessary that the subsoil be drained either naturally or artificially. It is necessary also that the quantity of irrigation water applied to the land shall be sufficient not only to supply the needs of the growing crops and the unavoidable losses by evaporation from the soil but also enough more to cause some leaching of the root zone into the drainage system.

The drainage system of an irrigated district should carry away from the root zone of the cropped land a quantity of dissolved salts at least substantially equal to the quantity carried to the land in the irrigation water. Because such a large part of the irrigation water is dissipated by evaporation and transpiration it is obvious that the

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drainage water from irrigated lands should carry much higher concentrations of salts than the irrigation water if a favorable salt balance for the district is to be maintained. Where irrigated lands are located along a stream channel, water is diverted from the channel for irrigation and a part of it returned to the channel as drainage. Each successive repetition of diversion and return diminishes the volume of the stream discharge and increases its salt concentration. Thus it may be said that the irrigated land along a stream in effect becomes an important source of salinity because it increases the salt concentration even if it does not add materially to the total salt burden of the stream.

The conditions described as occurring along a surface stream occur also to some extent in respect to underground water supplies that are developed for irrigation use by means of wells. These underground supplies, if they are not to be exhausted, must be replenished by percolation from surface sources. Deep percolation from irrigated lands is one of the sources of such replenishment, and consequently it is to be expected, as it has been found, that such percolating waters convey dissolved salts into the underground reservoirs from which irrigation supplies are drawn.

C. S. Scofield, *Bureau of Plant Industry.*

Land to Spare—A Conservation Problem in the Lake States

What to do with 60 million acres of roughly wooded, cut-over, and other wild land is the problem which is being forced upon the Lake States, Michigan, Wisconsin, and Minnesota, by ever-increasing tax delinquency. This large area, nearly half the total land of the region, stripped of its

Figure 43.—Most of the wild land of the northern Lake States is suitable for the long-time undertaking of forestry.

forest wealth, is in its present condition a liability rather than an asset. Faced with mounting taxes and shrinking incomes, owners

have been allowing cut-over land to revert to public ownership on an extensive and ever-increasing scale. Aside from a question of general welfare, the State administrations are faced with the problem of what to do with those orphan acres.

The Lake States have, however, been pioneers in land-use planning and are approaching the problem in a systematic and scientific way. In 1930 the Governor of Wisconsin appointed a special land-use committee to analyze the trends in agriculture, forestry, and recreation, and to recommend to the State a program of land management. A similar committee in Minnesota and several in Michigan have been at work at the same problem. A number of special studies have been made by the Lake States Forest Experiment Station at St. Paul. A very comprehensive and detailed study of the land-use problem in the 14 cut-over counties in northern Minnesota, together with recommendations for a definite program of action for each county, was made cooperatively by the University of Minnesota and the Bureau of Agricultural Economics of the United States Department of Agriculture, assisted by other State and Federal agencies. Finally, the Forest Service in its "national plan for American forestry" [2] made specific recommendations concerning forest development in the Lake States. As a result of these investigations a program for the future management of a part of these 60 million acres is taking shape (fig. 43).

Decrease in Farm Area of Lake States

During the decade 1920–30 there was a 2-million-acre decrease in farm area in the Lake States with immediate prospect of further reduction in crop acreage. Even looking ahead several decades, it seems unlikely that agriculture will demand more than 3 million acres of the available wild land for intensive cultivation—a million acres in each State.

Plans for public forests, as developed up to 1932, envisioned 12 to 13 million acres of "wilderness" and other areas for recreational purposes, including nearly 4 million acres in national forests, 7½ million acres in State forests, and 2 million acres in county forests. Parks, game refuges, summer homes, etc., occupy 2½ million acres and may eventually extend to several million more, but many of these needs may be met by proper use of the public forests.

Thus the commonest forms of land use—agriculture, forestry, wildlife conservation, and recreation—may lay claim to less than a third of the available wild land in the three States.

The full significance of the problem cannot be grasped, however, without consideration of the nature of the land.

The area is one of short, cool growing seasons; mostly the soil is poor—either sandy, swampy, stony, or rough; it is usually hard to clear; there is a long haul to market; and scattered settlement has caused an unfavorable tax situation. Some very good land is to be found and a few localities excel the more settled agricultural parts of the States in fertility and future possibilities, but these are only sufficient to warrant an agricultural program looking toward the gradual transfer of scattered settlers to these more favorable areas. There is no room for an influx of settlement.

[2] A detailed summary of this report, entitled "Major Problems and the Next Big Step in American Forestry", has been published by the Forest Service.

From the standpoint of forest management, the area as a whole is so badly run down from overcutting and fire that a long time and considerable investment of money will be required to restore it to productivity. The lands now returning to public ownership are like a mine from which the pay lodes have been stripped, the tunnels allowed to cave in, and the workings to fill with debris.

Land Classification and Zoning

As a first step in reclaiming the cut-over land, the State committees have strongly urged a systematic classification that will (1) guide future agricultural development by segregating the most promising crop land, (2) aid a sensible forest program by sorting out the areas most suitable for forest growth, and (3) designate preferred areas for wildlife and other land uses.

Instead of the present haphazard settlement in the cut-over area, so detrimental to economical local government, settlement must be concentrated on the better lands, enabling the residents to effect substantial savings in schools, roads, and other public services.

In spite of its run-down character most of the unused land is more suitable for the long-time undertaking of forestry than for any other use, particularly where so much land has been devastated and must be rebuilt. The sustaining power of any public-forest program is the most vital consideration. The program, soundly conceived, must set for itself a realizable goal in terms of probable future appropriations and general public support. A perfectly feasible public-forest program might include State-wide fire protection, extension of public forests, gradual public acquisition of abandoned land within these areas, and more careful management of selected tracts.

It has been estimated that reasonably good fire protection for the entire forest area can be provided at an average cost of about 4 cents per acre or a little less than $2,400,000 per year. Two-thirds of this amount was actually provided by State and Federal Governments in 1931. On the better lands the immediate result will be a better quality forest and better forest growth. On devastated areas it may require one or more tree generations to restore valuable forest cover, though during this period crops of fur and game may be harvested (fig. 44).

The inclusion of areas within the exterior boundaries of State, county, or national forests does not interfere with private ownership of land or even the selective development of farming, but tends to discourage unwise agricultural development in these areas, removes the public lands from sale and speculation, and gives a sound basis for reorganizing local governmental services. For efficient administration, ownership should be concentrated partly by exchanges, partly by public foreclosure on long-term delinquent land, partly by public purchase.

Cooperative Management Feasible

It may take many years to straighten out completely the mixture of ownership. In the meantime, some type of cooperative management should be feasible. This must at the outset be quite simple and inexpensive. Experience on national forests indicates that an extensive type of management, exclusive of fire protection but including prevention of trespass and care of game and recreational resources, etc., can be effected for about 4 to 6 cents per acre annually.

Only when a careful classification of the land has been made, more of the better forest land placed in public ownership, and the burdensome cost of acquisition and organization absorbed, can available public financial resources be profitably invested in any intensive type of forest management such as is practiced on the better forests of Europe. It has been proposed that one-third of the public forests should eventually be put under intensive management in the Lake States.

FIGURE 44.—Temporary aspen stand being converted naturally to fir and spruce through dependable fire protection.

In short, the answer to the question, what should be done with the millions of acres of wild and unused land in the Lake States, is forestry. Where practicable this may include extensive planting, cultivating, thinning, and pruning of trees, but over larger areas a less intensive but vitally important form of forestry is needed—a sort of benevolent custodianship which will prevent further abuse of the land and give nature a chance to restore the lost forest wealth.

R. N. CUNNINGHAM, *Forest Service.*

LAND-USE Study in Georgia Lays Basis for Purchase Project

The old plantation piedmont Cotton Belt of Georgia was selected as a major area for study by the Bureau of Agricultural Economics in its investigation of land-use problems. The general objective of the study has been to ascertain facts from which there may be developed public and private programs of action to bring about the profitable utilization of land and to improve the economic and social conditions of the rural population. On the basis of the facts developed in the study, the Federal Government has initiated a submarginal land purchase project in the State.

The first major segment of the study was a State-wide survey. This revealed the outstanding fact that the bollweevil invasion in 1920

merely precipitated a break-down, which had been under way for a number of years, in the agricultural plant in important sections of the State. This was particularly true in the lower piedmont. In 23 counties, for example, the agricultural plant (total land in farms, minus woodland) was larger in 1880 than it has been since. Probably the peak in those counties was reached before the Civil War. The decline up to 1930 ranged from 20 to 50 percent.

On the other hand, 43 counties had more acreage in their agricultural plant in 1910 than they had at any previous or more recent date; 55 counties reached their peak in 1920; and 36 counties in 1930. Of the last group of counties, 16 are located in the middle Coastal Plain, with some concentration in the Tobacco Belt. The shifting of cotton production northwardly in the piedmont and the expansion in horticultural pursuits in other sections of the State accounted for the increase in the remaining 20 of these 36 counties.

Generally speaking, the decline in agricultural development started in the old plantation piedmont Cotton Belt and progressed northward and southward. The decline, in large part, is the result of a detrimental land-use cycle practiced mainly by cotton farmers. Allowing land to revert to forest or other vegetative cover is merely one step in that cycle. Land was cultivated until erosion gullied the fields or washed the surface away. Forest or other natural vegetative cover tended to check erosion and gradually to build a new topsoil. Approximately 85 percent of the land in the 35 counties (covering about 25,000 square miles), representing the old plantation piedmont Cotton Belt, has been used for cultivated crops one or more times in the course of years. At present only 24 percent of that area is being used for cultivated crops.

System of Farming Unchanged

The system of farming practiced—a system which does not include adequate protection against erosion, or leave the steeper slopes permanently in woodland—has not changed. When land was no longer suitable for cultivated crops it was allowed to pass out of cultivation and to revert to such vegetative cover as nature provided. Frequent fires, often deliberately set on the assumption of making better pasture, or for other reasons, reduced much of the area to waste. The drain upon land resources was heavy. Cheap labor made that possible until the bollweevil invasion no longer made it profitable for the landowner to keep croppers on his land and to guarantee their subsistence. Since the bollweevil invasion, practically all of the commercial stands of timber have been cut and sold. With these sources of cash income removed, the decline in agriculture for the 35 counties, as a whole, was on a scale not exceeded elsewhere in the country. The acreage in harvested crops in 1924 was but three-fifths of that of 1919.

There was a decrease in rural population in that belt between 1920 and 1930 of 120,019, or 23 percent. In that same period the population of 2 counties decreased over 40 percent; 7 counties, 30 percent to 40 percent; 12 counties, 20 percent to 30 percent; 6 counties, 10 percent to 20 percent; and in 2 counties the decrease was less than 10 percent. Three counties had an increase in population. The present (1930) rural farm population in those counties is 297,104, of which 56 percent is colored.

By far the greater number of the land holdings or ownership of 2 or more acres in 24 of these 35 counties are owned by residents of the county where the land is located, or by residents of adjoining counties. Of the 25,154 ownerships, 84.6 percent fall in that class; 10.9 percent are owned by residents of the State but beyond adjoining counties; and 4.5 percent by residents outside the State. The non-State residents own 6 percent of the total acreage, as compared with 80 percent for residents within adjoining counties, and with 14 percent for residents in the State outside of the adjoining counties. These facts suggest that the development of sound land use is not handicapped because of distant nonresident owners.

Owner Operators the Largest Group

Owner operators represent the largest group of landowners, owning 38.5 percent of the total acreage, as is shown in table 10. Administrators and executors of estates, and banks and mortgage companies are next in importance. Land held by estates for settlement among heirs, or until minors come of age, makes up 10.5 percent of the acreage, which is a larger figure than is generally recognized. The amount of land held by banks and mortgage companies is significant in that it has been increasing in many counties since 1929.

TABLE 10.—*Acreage of land ownerships by business of owner old plantation piedmont Cotton Belt in Georgia*

Business group	Acreage	Percentage	Business group	Acreage	Percentage
Owner operators	1,792,740	38.5	County	13,394	0.30
Merchants	174,207	3.7	State	0	0
Professional men	139,466	3.0	All other owners except unknown	1,597,137	34.3
Administrators and executors	486,546	10.5	Unknown	10,591	.20
Banks and mortgage companies	357,007	7.7			
Real estate agencies	14,896	.3			
Woodworking industries	10,266	.20	Total	4,651,347	100.0
Power companies	36,232	1.20			

County records do not reveal the acreage of land owned by the county, or the acreage the county could acquire because of tax delinquency. The county figures given in table 10 are very incomplete.

Partial analysis of data suggests that a material proportion of landowners (resident and nonresident) fail to supervise the management of their lands. Management is, in large part, left to croppers or to other tenants, who lack information or capital necessary for proper management. The gradual destruction of the land in cultivated crops by the ravages of erosion and by careless burning of soil-building vegetation and young timber on land previously destroyed by erosion is, as a consequence, general rather than exceptional over the area. Instability of land ownership has proved to be the consequence.

This study has revealed that the existing maladjustments in the use of land resources are organic and not functional in character—that is, that they have resulted from traditional farm-management practices rather than from the bollweevil invasion, which corresponded with the period of general depression in agriculture beginning in 1921.

Second Phase of the Investigation

The facts thus revealed in the State-wide survey in general, and in the 35 counties representing the old plantation piedmont Cotton Belt in particular, led to the second phase of the investigations—the selection of five laboratory areas for intensive study of relationships among character and intent of ownership, farm management practices, soil conditions, fiscal policies and practices, land use, and soil and erosion factors. The results of this many-sided attack on maladjustments in the use of land are in process of tabulation and analysis. In order to provide a basis for projecting the results secured from these laboratory areas to other parts of the 35 counties, a cross section of the entire region of one-eighth of a mile wide and 207½ miles long was mapped as to soil type, slope and erosion classes, and land use. Ownership data were obtained from all counties. The forested land was classed by type of forest cover, stand, density, volume, and age. Idle land was classified as to physical suitability for cultivation, pasture, or timber. The data obtained also will furnish a basis for the classification of the lands according to their suitability for wildlife.

A third major segment of this study consisted of making a detailed classification of land of the entire area of four adjoining counties in accordance with the use for which it is best suited. This classification, together with an analysis of fiscal, social, and related problems, will illustrate, by location, the need and a method for rural reorganization applicable to other sections of the State.

As an initial step toward effecting the materalization of sound land-use planning programs of action, a Federal submarginal land project, located in these four counties, has been tentatively approved. One hundred thousand acres of submarginal farm land, on which approximately 400 families reside, will be purchased and diverted to more extensive uses. The families located on this land will be resettled on adjoining land better suited for growing maintenance crops and noncompetitive cash crops adapted to this area. This project will demonstrate the economic soundness and social desirability of rural reorganization and the program of study sketched above will point the way for expansion of needed reorganization to other areas.

WILLIAM A. HARTMAN, *Bureau of Agricultural Economics.*

Lead Arsenate Substitutes Still Sought for the Control of Fruit Insects

The Department of Agriculture has constantly before it the urgent need for a substitute for lead arsenate in the control of the codling moth on apples and pears, as well as for the control of other insects wherever the use of this poison results in harvested products bearing residues that may be injurious to human health.

Lead arsenate has been the standard stomach poison for the control of chewing insects for 30 to 40 years, and its use has been steadily increasing. During recent years, however, there has been a growing realization of the danger of serious chronic effects on human beings from the regular ingestion of minute quantities of either lead or arsenic. One of the important tasks of the Bureau of Entomology and Plant Quarantine is to develop some material as effective as lead arsenate and yet much less injurious to human health.

Although lead arsenate is generally recognized as the standard insecticide, there are many chewing insects for which it is only partially effective. Even in the control of the codling moth, or apple worm, for which many million pounds of lead arsenate are used annually, the material falls far short of giving satisfactory control, expecially under conditions of high worm population. The real objective, then, is a better insecticide, and even if there were no spray-residue problem a search for new and more effective stomach poisons would still be needed.

This search has involved the laboratory testing of many hundreds of new materials, followed by the testing of the more promising ones under practical orchard conditions. Although the goal has not been reached, it is believed that the information obtained thus far will aid in pointing the way to the ultimate development of a new insecticide.

The use of arsenic combined with some element less objectionable than lead would be a partial solution of the problem. Extensive work has been carried on with a long list of other arsenicals, but none has been found equal to lead arsenate for the control of fruit insects. Prominent among these is calcium arsenate, which is useful in the control of insects on many crops. Against the codling moth, however, it has been found definitely less effective than lead arsenate, and in the control of severe infestations the difference is an important one. As a further disadvantage, calcium arsenate is much more apt to injure foliage than is lead arsenate. Work is being continued with this group of materials, however, in the hope of developing some less objectionable arsenical.

In the past 6 years the Department has done a great deal of work with certain compounds of fluorine. Among these materials, sodium fluoaluminate, also known as cryolite, has been found of considerable value in controlling the codling moth in the arid areas of the Northwest. In fact, it has frequently given more satisfactory control than lead arsenate in those areas. In the more humid middle-western and eastern areas, cryolite has given less consistent results. Barium fluosilicate has also given encouraging results.

When the work with these compounds was first undertaken, little was known about the toxicity to human beings of fluorine in the minute quantities that would be present in a spray residue. The results of recent experiments and observations, however, have not been favorable to the use of the fluorine materials, and it is questionable whether they can be used any more freely than can lead arsenate. The Bureau of Entomology and Plant Quarantine is cooperating with the Bureau of Plant Industry in experiments with the removal of fluorine residues, since it is evident that the use of the fluorine insecticides on apples and pears must be followed by processing of the fruit to remove the residues.

Nicotine as a Possible Substitute

Nicotine is being investigated as a possible substitute for lead arsenate in codling-moth control. Nicotine has a high initial toxicity, but in practical field application it loses this toxicity very rapidly. Nicotine is rather volatile at high temperatures and, being soluble in water, is readily washed off by rain. Considerable progress has been made toward the working out of methods whereby the nicotine can be made more persistent on the foliage. Nicotine can be made considerably more effective by applying it with a dilute emulsion of one of the

highly refined oils. This combination has been used by a number of orchardists on a small commercial scale, but it is open to certain disadvantages. When the oil-nicotine combination follows applications of lead arsenate, it renders the arsenic and lead extremely difficult to remove at harvest time. The extent to which oil can be used on trees in foliage is more or less limited, even when the more highly refined oils are used. The oil sprays are likewise incompatible with sulphur fungicides, which in many of the humid areas must be used through the greater part of the season. Last, but by no means least, the frequent use of nicotine and oil is rather expensive, a factor which commercial growers cannot overlook.

Another possible method of improving the effectiveness of nicotine is by combining it with tannic acid to form a compound that is much less soluble and volatile than nicotine alone. The results with this combination have been favorable in certain localities, but much less favorable in others. A combination of nicotine with bentonite has also given encouraging results under some conditions. There is, therefore, every reason to believe that further work may result in the development of practical and economical ways of using nicotine. An unknown factor is the effect of nicotine in such combinations on the health of the consumer. Research work on this phase of the problem is being conducted by the Bureau of Chemistry and Soils.

Derris, Cubé, and Pyrethrum Tested

Derris, cubé, and related plants have also been investigated rather extensively as possible substitutes for lead arsenate. The roots of these plants contain rotenone and other constituents that possess definite insecticidal value. Unfortunately, however, these constituents are rather unstable when exposed to intense sunlight, and methods of using the materials in the control of the codling moth and other fruit insects have not yet been fully developed. The materials possess such a high initial toxicity, however, that they still offer a promising field for investigation. As with all the other substitute materials that have been considered, the exact relation of the derris derivatives to human health has not been established. Because of their instability, however, it is believed that, if they are found to be dangerous to human health, processing methods can be readily developed for their removal or for their transformation into nonpoisonous compounds.

Pyrethrum, which is extensively used in the preparation of fly sprays, also contains toxic ingredients that may ultimately prove useful in codling moth control. The compounds found in pyrethrum are likewise very unstable, and methods of keeping them longer on the fruit and foliage must be worked out, if they are to find a place in the codling moth control program.

To sum up the present status of the development of new insecticides, a generally practical substitute for lead arsenate in the control of the codling moth and other fruit insects has not yet been developed. On the other hand, many of the materials now under experiment possess the first essential, a high degree of initial toxicity to insects, and there is every reason to believe that methods will be worked out whereby some of these, or other materials as yet untried, will ultimately be developed into effective and unobjectionable substitutes for lead arsenate.

B. A. Porter, *Bureau of Entomology and Plant Quarantine.*

LIVESTOCK Poisoned With Hydrocyanic Acid Can Be Saved by Prompt Treatment

Each year many animals, principally sheep and cattle, die as a result of their having eaten plants which produce hydrocyanic or prussic acid. Some of these plants are native and grow wild in the pastures and ranges, and some are among our most valuable cultivated forage plants. Every State contains one or more of these plants so that the losses occasioned by them concern every agricultural community. The principal cultivated plants which are involved are the sorghums, Johnson grass, Sudan grass, and flax; the native plants are the wild cherries and arrowgrass. Although scientific studies have furnished some knowledge of the conditions under which these plants are most likely to poison animals, no satisfactory method has heretofore been suggested for treating poisoned animals. This situation has existed, no doubt, because of the rapidity with which the poisonous substance acts.

Recently in the practice of human medicine, methylene blue, sodium nitrite, and some other substances have been used with considerable success against prussic-acid poisoning, and these have been tried experimentally on animals similarly poisoned. The results suggested the possibility of developing methods of treatment by which one or more of these drugs could be used effectively by the practicing veterinarian.

Small Quantity Enough to Kill

Because the quantity of prussic acid that is developed in the different plants varies between wide limits, it was necessary in the preliminary experiments to use the poison in a form that could be better controlled and to know just how much of it would produce fatal results. For this purpose potassium cyanide was administered by the mouth and it was determined that, for cattle, the smallest fatal dose, in terms of the hydrocyanic acid itself, was very close to 0.000204 percent of the animal's weight, and for sheep it was 0.000231 percent. The next step was a comparison of the effectiveness of the various substances that had been recommended as remedies for poisoned animals.

In the first series of experiments sheep were used, and four of the recommended substances were tried. These were methylene blue, sodium nitrite, sodium thiosulphate, and sodium tetrathionate. A definite quantity of each remedy was dissolved in water and injected into the abdominal cavity of a poisoned animal. The results indicated that, although all of these substances were to some extent effective as antidotes, two of them, sodium nitrite and sodium thiosulphate, were more satisfactory than the others.

Combination Treatment Most Effective

In a second series of experiments cows were used, and sodium nitrite and sodium thiosulphate, both separately and in combination, were tried as remedies. In all the cattle experiments, solutions of these substances were injected directly into the jugular vein. Each one of these remedies, when used alone, prevented death in animals given 1.4 times the amount of the poison necessary to kill. When both remedies were administered in combination it was found that animals

could be saved that had received twice the fatal dose. In other words, the combination of the two remedies was more effective than either one by itself.

A third series of tests was then made to determine the effectiveness of the combination of sodium nitrite and sodium thiosulphate with sheep that had been poisoned by hydrocyanic acid. As in the first series, the remedies were injected into the abdominal cavity. The results demonstrated more clearly than in the cattle tests the superiority of the combination of the two remedies. When used by itself one of the remedies prevented the death of a sheep that had received 1.66 times the quantity of hydrocyanic acid that was necessary to kill. When both remedies were used in combination, animals were saved that had received three times the dose of the poison that ordinarily would cause death. In other words, the combination was nearly twice as efficient as either remedy by itself.

To test the combined remedies against poisoning by plants that produce hydrocyanic acid, a number of sheep that had been fed known quantities of arrowgrass were treated. The curative procedure in the tests was the same as when the potassium cyanide was administered. The results in most cases were successful when less than 2.5 times the quantity of arrowgrass necessary to kill had been eaten.

Sodium nitrite, however, is a moderately poisonous substance, so it was deemed important, as a precautionary measure, to determine just how much could be safely administered, also to determine what effect, if any, the presence of sodium thiosulphate might have on the poisonous effects of the nitrite. The results of a series of experiments with sheep showed that a safe therapeutic dose of the sodium nitrite for a sheep is 1.2 grams for 100 pounds of animal weight, that twice this amount is dangerously close to a fatal dose, and that more should never be administered.

Prompt Treatment Necessary

As stated before, hydrocyanic acid acts very quickly after it has been administered. Consequently a series of experiments was conducted to determine just how promptly after poisoning the combination of the two remedies must be given to be effective. For animals that had been given 1.5 times the smallest quantity of the poison required to kill, it was found that if the animals were treated within 4 minutes after the poison was given there were chances of saving the animals, but if a longer time elapsed the animals were liable to die. When plants producing prussic acid have been eaten, the symptoms of poisoning do not develop quite so rapidly.

As a result of the facts presented, it is recommended that in cases of poisoning by any of the plants mentioned, a local veterinarian should be called at once and consulted regarding the giving of remedies. If possible, he should administer them, or they should be administered under his direction. Notwithstanding the need for early treatment, practical experience shows that veterinarians who answer calls promptly may save many animals by the method described. This is particularly true when, after a herd or flock has been turned out to pasture, a veterinarian is called at once if symptoms suggestive of prussic acid poisoning are observed in any of the animals.

In the case of sheep weighing approximately 100 pounds, inject intraperitonally a water solution containing 1 gram of sodium nitrite and 2 to 4 grams of sodium thiosulphate. For cattle weighing 500

pounds or more, 2 to 3 grams of sodium nitrite and 10 to 20 grams of sodium thiosulphate should be used, and the solution should be injected intravenously. With both sheep and cattle the injection of thiosulphate may be repeated, but only one injection of the nitrite should be given. The solutions keep well and so may be made up ready for use. If desired, they can be sterilized by boiling without being materially changed.

A. B. Clawson, H. Bunyea, and J. F. Couch,
Bureau of Animal Industry.

Lumber and Log Stains Can be Controlled by Chemical Treatments

Unseasoned lumber and logs from some of the most important commercial trees are subject to serious discoloration, caused by sapstaining and molding fungi. The fungi may enter logs lying in the woods or at the mill, or lumber in the mill yards, or during subsequent handling. Log infections continue to develop in the lumber cut from the logs and serve as a source of infection to other lumber in the same yards. Damage in transit is especially common in export shipments. Such discolorations have lowered the quality and increased the cost of wood products both to the manufacturer and to the consumer. While strength properties of the wood are ordinarily little affected, its utility value is greatly reduced where a natural finish is desired.

During recent years a decided prejudice against the use of discolored products has developed among domestic and foreign consumers. This prejudice has been in part justified by the fact that decay in early stages is often associated with and masked by stain. Foreign buyers particularly have objected to discolored material and have been allowed large damage claims or have shifted their purchases to less susceptible woods. In an effort to meet consumer demands for unstained lumber, manufacturers have adopted more rigid grading rules which limit the amount of discolored material in the common as well as in the finish grades of lumber. The increased prejudice, coupled with the fact that second-growth timber contains more sapwood than does virgin timber, has made the problem of control increasingly important.

Control Methods Commercially Applicable

Investigations on sap stain and mold control were begun in 1928 with financial assistance from lumber agencies of the Gulf States. A preliminary survey indicated that the development of cheap and efficient antiseptic chemical treatments offered most promise of yielding control methods of immediate commercial application. Current chemical treatments were of limited usefulness, since they were only partly effective on softwoods and not applicable to hardwoods. In addition, the small mills with few exceptions had not found it practicable to incorporate current stain-control methods in their manufacturing practices. The tests conducted since 1928 have provided the large pine and hardwood industries with equally cheap and much more efficient treatments for lumber, veneer, and other wood products.

Two of these treatments, low concentrations of an organic mercury compound and a mixture of chlorinated phenols in water, are effective on both pine and hardwoods and can be used by mills cutting both types of wood. A third treatment, borax in saturated solution, is equally effective on hardwoods, but is inferior on pine. Figure 45 compares the appearance of untreated lumber with that of lumber dipped in one of the new antiseptic solutions. The potential use of these treatments has been materially increased through recent tests demonstrating their feasibility for the small-mill industry. Increased value is indicated also by their prevention of some of the incipient decay infections originating in lumber during storage periods. Such infections are important factors in replacement costs necessitated as a result of decay of wood in use. Experience so far with export lumber indicates that the treatments will reduce transit losses materially. Continued experimentation is expected to increase their value further for this purpose and for some other products and conditions not yet satisfactorily covered.

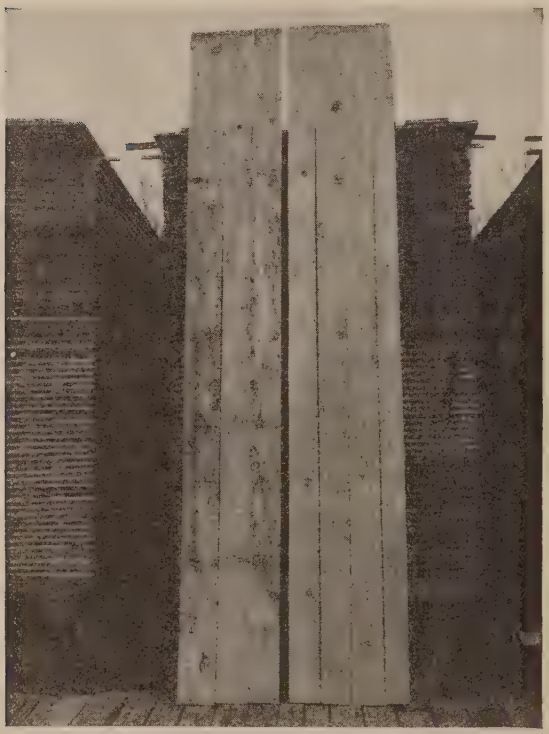

FIGURE 45.—Typical boards from untreated (left) and treated (right) test piles of southern pine lumber.

Chemical antiseptics similar to those mentioned for stain control on lumber, but with different methods of application, have proved effective in reducing fungus deterioration of stored logs. Recommendations can be made for the prevention of stain and decay during normal storage periods in the Gulf States for seasons when insects are inactive. Promising results have also been obtained with the use of these materials as pretreatments for the control of stain and decay in fence posts during seasoning prior to impregnation with preservatives.

Economic Value of the Treatments

The development of efficient treatments of low cost and easy application has aided pine and hardwood manufacturers in improving quality of both domestic and export products. It has stimulated an interest in stain control and hence in a generally improved product, as is evidenced

by the wide-spread adoption of these treatments by small as well as by large southern mills. The extension of stain-control methods to the small-mill industry is of decided significance in view of the fact that over 50 percent of the pine production in the South during certain recent years has come from the small mills. The efforts of the wood industry in general to raise the reputation and utility value of its products will be aided considerably if the standard of small-mill production is improved.

The significance of these stain-control treatments to the foreign buyer is indicated by the frequent specifications for chemically dipped lumber. American lumber is shipped to more than 50 countries, and discolorations occurring before and during transit have seriously handicapped some of the most important species in competition with other woods. Overcutting timber stands to supply the demand for higher grades of lumber has been reduced through sap-stain control and the consequent reduction in the proportion of lumber that goes into the lower grades. In other words, utilization practices have been improved and forest conservation has been aided thereby.

RALPH M. LINDGREN, *Bureau of Plant Industry.*

MARKETING Agreements and Licenses Buttress Work of Cooperative Associations

During the 19 months since the enactment of the Agricultural Adjustment Act some 55 marketing agreements and 95 licenses have been approved. These agreements and licenses relate to a wide variety of farm products and affect directly or indirectly a large number of farmers. It is important, therefore, to review briefly these activities and to indicate in some measure the place which such activities should occupy in a continuous program of agricultural readjustment.

The authorization for marketing agreements under the adjustment act is very broad. The only limitation placed upon such agreements is that they must aid in the accomplishment of the purpose of the act, which is to restore the purchasing power of farm products. Parties to such agreements may include producers, associations of producers, processors and others "engaged in the handling of any agricultural commodity or product thereof, in the current of or in competition with, or so as to burden, obstruct, or in any way affect, interstate or foreign commerce."

The marketing programs which have been developed through the medium of marketing agreements and licenses are not readily subject to simple classification. By far the largest groups of programs, however, and those which are likely to be most important as a part of a continuous policy of agricultural adjustment are distinct in that they represent a further development and use of marketing plans which had been previously formulated and to some extent utilized for several years by cooperative and private handlers of particular products. Those familiar with the use of clearing houses and with various efforts at industry-wide cooperation in dealing with serious marketing problems in the fresh-fruit and vegetable industry during the past decade will recognize the marketing-agreement program of the past two seasons, insofar as it relates to this group of products, as the logical outgrowth of these earlier efforts. Likewise, the essential features of the marketing agree-

ments or licenses which have been developed in over 40 fluid-milk markets are similar to the various types of marketing plans which have been used by cooperative groups of milk producers for many years.

Agreements Supplement Previous Program

The marketing agreement supplements these previous programs, however, in two important respects. The Agricultural Adjustment Act provides for the immunity of such agreements from the operations of the antitrust laws, which is important in dealing with problems involving interstate commerce. Furthermore, the licensing power of the act has been used as a means of making marketing-agreement programs effective on the minority groups which have not signed the agreement. These two features have made possible in some instances the development, for the first time, of reasonably effective programs for increasing prices to producers in which all handlers have participated. The most successful agreements and licenses are those which have been developed on the foundations built by long-established farmer cooperatives, the members of which, realizing that their own enlightened self-interest coincides with the best interests of their group, have formed the habit of thinking and acting together.

As early as 1914 the growers and shippers of cantaloups in the Imperial Valley of California undertook to regulate the movement of cantaloups to market in an effort to cope with an unprecedented supply situation. The following quotation refers to operations in 1922:

> There was no definite cooperative organization as such, but the season was saved from disaster by real cooperation ably seconded by knowledge and facts. Each day, throughout the shipping period, all of the distributors met with the Federal market news service representative, in his office at Brawley, and each shipper gave his intended number of shipments for the day, with destinations. The totals of the intentions were compared with the consuming power of the cities, as charted, and with the shipments they had recently received. If it appeared that certain cities were being overstocked, the plans for shipments were so shifted that a more even distribution would be effected. Single cars were sent to smaller cities not previously slated to receive any, but shown on the records as capable of consuming an occasional carload.[3]

Here was the essence of a simple marketing agreement similar in many respects to many which have been developed during the past two seasons. This effort, however, was made without proper legal sanction and no means were available whereby any handlers who refused to cooperate could be required to assume their proportionate burden of the voluntary effort to adjust supplies to market demand.

Later efforts of a similar character, but including more comprehensive schemes for the actual withholding of shipments if necessary, were undertaken by several groups of California fruit and vegetable growers, including the growers of lemons, Valencia oranges, Flame Tokay grapes, Imperial Valley lettuce and cataloups, Watsonville apples, canning peaches, and raisin, table, and juice grapes. In each case the action was taken in order to avoid the prospect of ruinous prices. Somewhat similar efforts to improve the distribution of particular products have been undertaken in other commercial fruit and vegetable producing areas, but usually with less success than that attained in the California experiments with approximate industry-wide cooperation in supply control. An outstanding difficulty in all of these efforts, however, was the fact that there was always a minority group which refused

[3] SHERMAN, C. B., A PRACTICALLY PERFECT PIECE OF DISTRIBUTION. Jour. Home Econ. 15: 13–14. 1923.

to cooperate and was, therefore, able to obtain the benefits of the price level established by the cooperating majority without bearing its share of the burden of supply control. One function of a marketing-agreement and license program then is to see that the benefits and burdens involved are, insofar as practicable, equitably distributed among all producers.

Even with the best of production planning it is to be expected that both with annual crops and with tree fruits, there will be years of heavy production, when, if no control is maintained over supplies marketed, the growers will receive little or no income for their crops. In October and November 1934, for example, a considerable proportion of the Florida grapefruit sold on the New York and Chicago auction markets failed to bring enough to pay the actual cash outlays involved in harvesting and marketing the fruit. In the case of tree fruits these problems of oversupply may persist for several years as a result of an ill-advised, uncoordinated, or promotional development of new orchards made in previous years. In the face of such a situation the growers must of necessity become interested in finding some way of marketing only that quantity and quality of fruit which will at least return more than the cost of harvesting and marketing, and also if possible some means of reducing the harvesting and marketing costs. In such circumstances a marketing program carried out through the use of an agreement and license may not retrieve all of the losses resulting from the previous mistakes in production planning, but it can frequently serve to alleviate the distress incident to the ruinously low prices which often accompany uncontrolled marketing.

The use of marketing agreements in dealing with the problem of supply control or regulation of movement to market is less satisfactory for annual crops than for crops such as tree fruits. Growers who have recently made expenditures for seed, labor, and fertilizer are naturally averse to withholding a portion of their product from the market after it is produced. On the other hand there are many problems involved in attempting to allot acreages or production quotas to individual producers as a part of a marketing-agreement program. It is obvious also that such a program could not be enforced on a minority of growers through the use of the present licensing provisions of the Agricultural Adjustment Act. In the case of the annual crops also acreage and production tend to respond quickly to improvement in price and a marketing-agreement program to be continuously successful must, therefore, include some provision for maintaining a checkrein on production.

The second important group of marketing programs which have been developed under the agreement and licensing provisions of the Agricultural Adjustment Act relates to fluid-milk marketing. Such programs are in effect in about 45 different fluid-milk markets. In each case the local organizations of producers have requested the application of this program as a means of improving prices to producers or of assuring equitable treatment to all of the various groups of producers in the area affected. Experience to date has shown that within reasonable limits milk-marketing agreements or licenses are unquestionably of value if they are used to protect producers from the effect of distributor price wars, eliminate the tendency for non-

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members of cooperative organizations to nullify the efforts of the cooperators, or to develop protective services for producers such as check testing and check weighing. Too much should not be expected, however, of such agreements and licenses as have been developed to date as a means of dealing with low prices which are directly attributable to burdensome supplies. It may be possible, however, to develop programs which will include definite provisions for adjusting supplies in line with market demands.

As a purely emergency mechanism the marketing-agreement and license program has also demonstrated its usefulness in dealing with a considerable variety of farm products. In connection with the 1933–34 tobacco program, for example, marketing agreements were used primarily as a means of obtaining a higher price for the growers on the 1933 crop by capitalizing on the action of the growers in agreeing to reduce acreage in 1934 and 1935. Having served this emergency purpose, the agreements with one exception, were not continued. A marketing agreement for disposal of north-Pacific wheat surplus was utilized as a means of removing a burdensome surplus of wheat from the Pacific Northwest in the 1933–34 season. The marketing agreement of the peanut-milling industry whereby a minimum price was established for the 1933 crop was of a purely emergency type and has been superseded by the development of a production-adjustment program including the diversion of a part of the supply into feeds and peanut oil.

J. W. Tapp, *Agricultural Adjustment Administration.*

Marketing Studies Show Importance of Increased Efficiency

The net income of farmers can be increased either by raising prices to the consumer or by lowering the costs of production and marketing. For example, bread cost the consumer an average of a little over 8 cents a pound loaf in July 1934. The farm price of wheat was about 80 cents a bushel. A bushel of wheat will make about 64 loaves of bread, so the consumer was paying over $5 for the bread made from an 80-cent bushel of wheat. The remaining amount went to pay the miller, the baker, the transportation companies, and to pay for other materials such as milk and shortening. If bread prices were raised from 8 cents to 9 cents and costs of transportation, processing, and marketing remained the same the consumer would pay 64 cents more for the bread made from a bushel of wheat and the 64 cents would go to the farmer. However, the same result would be obtained if city bread prices stayed at 8 cents and the costs of transportation, processing, and marketing could be reduced 64 cents.

If the farmers' purchasing power is to be increased and sustained, adjustments are needed not only in the output of farm commodities but in the marketing of those commodities as well. Marketing costs rose rapidly during and immediately after the war and have stayed at high levels ever since. Any substantial improvement in the efficiency of our system of marketing will greatly benefit both the farmer and the consumer.

The need for adjustments in our marketing methods is brought forcefully to our attention by studies of spreads between farm prices and city retail prices of foods since 1929. In 1929 a month's supply

of 14 important foods cost an average American family $26.11. By 1932 this cost had fallen to $16.78. The farm value of the equivalent amounts of food products fell from $12.40 in 1929 to $5.54 in 1932. The spread between farm and city prices (or the total of all charges for transportation, processing, and marketing), fell from $13.71 to $11.24. In other words, while city prices were dropping 36 percent, the total cost of getting food from the farmer to the city consumer dropped only 19 percent. This failure of marketing costs to fall in proportion to prices of food was a result of the fact that many marketing costs are definitely fixed except over long periods. The relative inflexibility of such costs was to a considerable degree responsible for the fact that farm prices dropped 55 percent—or much more than the drop in city retail prices. In 1929 the farmer got 47.5 cents of each dollar spent by city consumers for these 14 foods. In 1932 the farmer got only 33 cents of the consumer's dollar.

Many Relatively Fixed Charges

Between the farmer and the consumer there are many charges—such as freight rates, for example—which are relatively fixed. It took several years of depression to bring about any reduction at all in many of these charges. As conditions in business and agriculture improve there will doubtless be an attempt to increase such charges; perhaps to predepression levels. Some increases in individual cases may be entirely reasonable and just. The payment of processing taxes and of increased wages makes higher charges in some industries necessary. It is obviously desirable to prevent if possible any unnecessary increases in marketing costs and wherever possible these costs should be decreased by more intelligent and more efficient marketing methods.

The spread between farm and city values of foods has widened somewhat since 1932, but the increase has been very moderate in view of the fact that it now includes the payment of processing taxes on wheat and hogs and that wages have increased. From 1932 to July 1934 the city retail value of a month's supply of 14 important foods increased from $16.78 to $18.13, or 8 percent. The farm value of the equivalent amounts of food products rose from $5.54 to $6.60, or 19 percent. The spread between farm values and city values increased from $11.24 to $11.53, or 3 percent. As a result of the fact that marketing costs increased proportionally less than did prices of food, the farmer's share of the consumer's dollar increased from 33 cents to 36.4 cents. It should be remembered, of course, that the part of the margin represented by the processing taxes goes back to the farmer who cooperates in farm adjustments; so that the real spread between what the farmer gets and what the consumer pays is not quite the total spread between farm prices and city prices.

These figures show that since 1932 the spread between farm product values and city retail values of food products has increased only slightly. The payment of processing taxes and higher wages accounts for at least a large part of the increase that has occurred. Nevertheless, it should be recognized that these spreads are high and probably could be reduced in many cases by more efficient methods of marketing and distribution. Marketing costs in this country increased greatly during and immediately following the war and although they have been somewhat reduced since 1929 they are in most cases still considerably higher than they were before the war. The result is

that in many cases the consumer is paying more for foods and other farm products than he did before the war while the farmer is getting less. In order to procure for the farmer as reasonable a return as possible we must have efficient marketing as well as orderly production.

Spreads between farm prices and city retail prices in the United States are in many cases higher than in other countries and such differences cannot be wholly explained by differences in wage rates. For example, in a number of European countries consumers can buy wheat bread at about one-half the average price in the United States although the price of wheat is higher than in this country. Only a part of this difference can be explained by lower wage rates in Europe. Perhaps the most important reason for the difference is in the different systems of distributing and marketing bread and in the extra services such as wrapping and slicing which American bakers commonly give.

Coordinated Research Needed

It has become apparent in the last few years that we need a broader and more coordinated program of marketing research in order to get at the facts on the basis of which we can improve the marketing of farm products. For that purpose the Department of Agriculture recently organized a Division of Marketing Research in the Bureau of Agricultural Economics. The new Division will be able to study many broad problems of marketing which do not come entirely within the scope of any of the commodity divisions. It will also work with the commodity divisions of the Bureau of Agricultural Economics and with other research agencies to bring together the available facts and to study them for the purpose of finding practical ways of improving our system of marketing.

In connection with a research program in marketing the Department is carefully studying the possibility of using the marketing agreements under the Agricultural Adjustment Act to bring about more orderly and more efficient marketing. It is conducting a series of studies, for example, to determine the extent to which the marketing agreements under the Special Crops Section have improved the prices paid to growers; how they have affected dealers' costs and charges and marketing methods and practices; and how they have affected consumers' interests, including the effects on retail prices, on availability of supplies and on the quality of food.

Many experiments have been made with the marketing agreements. These experiments include agreements to control supplies, to fix prices to growers, to fix resale prices, and to establish uniform trade practices. The results of these experiments are being carefully studied in order that policies may be worked out which will not only promote more orderly distribution but will lower the costs of marketing, increase consumption, and return to the farmer a better income.

Marketing agreements under the Agricultural Adjustment Act have also emphasized the need for further developments in standardization and in market news. The services which the Bureau of Agricultural Economics has built up in these fields have been indispensable in connection with many of the marketing agreements and in many cases these services have been expanded and modified to meet the special problems resulting from the agreements. The whole program of grading and standardization must be kept flexible in order that

changes in the grades and in their application can be made in the light of increased knowledge of the qualities demanded by consumers and dealers and of more complete facts concerning the relation of quality factors to the use value of commodities.

Standardization and grading are not only for the purpose of protecting the consumer but also should make it possible for farmers to get premiums for superior quality. Studies of cotton prices and prices of some other farm products have shown the need for changes in methods of marketing in order that premiums for quality may be more fully reflected in the prices paid to farmers. Such premiums are a necessary incentive to the improvement of quality.

There is an increasing interest in grades and standards to be used in the retail trade to identify the quality of foods bought by the consumer. The development of such grades and standards would be of great benefit to the consumer and indirectly to the farmer also.

The most important and most difficult problem in marketing is in bringing about changes in our present methods and practices and in our market institutions, organizations, and facilities in order to promote efficiency and to lower marketing costs. Such a reorganization of marketing methods and facilities requires careful studies of the existing structure of our marketing system and the joint analysis of the economist and the engineer in order to find practical ways by eliminating costly methods and unnecessary services.

Many Wholesale Markets Inefficiently Organized

The wholesale markets for food products in many of our large cities are very inefficiently organized. Facilities have in many cases been built by rival railroads and are not properly located. In many cases the markets for local farm products and for truck receipts are poorly organized and are not coordinated with other parts of the market system. Such a situation leads to unnecessarily high costs of marketing and distribution. Not only the city consumer but the farmer, as well, has a vital interest in reducing such unnecessary costs.

Marketing methods are changing rapidly both in the city and in the country. Such developments as the growth of direct buying by large retail organizations, the increased distribution by motor truck, the direct marketing of hogs, the development of auction markets at country points, the greater number of commodities sold on futures contracts by commodity exchanges, and new developments in methods of cooperative marketing all are experiments which may lead to improved methods. The results of such experiments must be carefully watched and studied scientifically.

Much can be done to build up a better marketing system by the regulation of methods and practices either by law or by marketing agreements. In addition to such regulation, research and educational work are necessary in order to point the way to practical improvements in marketing.

Improved marketing and better education can also go a long way toward increasing the consumption of certain foods. Surveys made by this Department during recent years have shown a wide-spread underconsumption of milk. Many city families are also getting inadequate supplies of vegetables and other foods. At least a part of

this underconsumption can be remedied by better marketing and distribution.

FREDERICK V. WAUGH, *Bureau of Agricultural Economics.*

MASTITIS of Cattle May be Controlled by Tests and Sanitary Procedures

The best present evidence indicates that the cattle disease, mastitis, also known as garget and mammitis, exists to some extent in a large number of dairy herds in this country, probably in the majority. In some of these herds, nearly one-half of the milking cows are affected.

One species of bacteria appears to be responsible for about 90 percent of the cases of mastitis. The disease produced by these bacteria is as a rule of chronic form. In many cases no indication of infection is observed other than the occasional appearance of flakes in the milk and a decrease in milk production. Other cows, however, may suffer recurrent attacks of acute mastitis in which the udder becomes hot, swollen, and painful, and the milk secretion drops abruptly or may stop entirely. Under proper management the acute condition subsides rather quickly and the udder returns to its former state, but the infection remains. Relatively few cows seem to recover completely from the disease, which persists in the udder from one lactation period to the other without any disturbance in the general health of the animal.

Methods of Detecting the Disease

Although attempts have been made to cure the disease by various measures, none has yet proved to be generally effective. Since the mastitis bacteria appear to spread from the diseased to healthy animals through milking, either by machine or hand, a promising means of controlling the disease is the detection of the infected animals and milking them after the healthy ones. Many tests have been devised to find these diseased animals and some of them have been investigated by the Bureau of Animal Industry.

All but one of the tests studied depend upon detection of changes produced in the milk by the bacteria which cause mastitis. The test which does not relate to the composition of the milk is made by palpating the udder for the presence of changes in its physical character. When the udder becomes infected, the normal glandular tissue is gradually replaced by fibrous tissue. As a result hard nodules or diffuse areas of hardened tissue are felt when the udder is manipulated with the fingers. Such changes are always diagnostic of mastitis.

The most practical test for dairymen is to use the strip cup daily. This is simply a tin cup covered with a fine wire screen or a piece of black cloth. Two or three streams of milk are drawn onto the strainer from each quarter immediately before the animal is milked. Any quarter in which clots are found is infected with mastitis. Inasmuch as clots are not always found in all the infected quarters, the test is not entirely effective. Another measure which can be applied in the stable determines the degree of acidity of the milk as soon as it is drawn from the cow. The test consists in adding a given quantity of a color indicator, bromothymol blue, to a definite quantity of milk.

If the change in color shows an appreciable increase in alkalinity or acidity, mastitis is present. The proper interpretation of this test requires considerable skill, and even experienced persons may overlook some infected quarters because milk from such quarters is not always changed in reaction.

Services of Veterinarian Desirable

The other tests which have been tried are best conducted in the laboratory, although a modification of one of them—the chlorine test—has been used in the field. When a quarter is affected with mastitis, there is an increase in the quantity of chlorides present, a condition which in severe cases is sufficient to give a salty taste to the milk. Another test is the determination of the number of body cells present in a known quantity of milk. When infection is present in the quarter, the number of cells increases sharply. All these tests, however, indicate only that the quarter is diseased without showing what the cause may be. The only means of determining definitely whether mastitis bacteria are present in the affected quarter is by bacteriological examination of a sample of milk drawn as carefully as possible to exclude outside contamination. By this procedure the number and kind of bacteria may be determined, but because of the labor and equipment required it cannot be used on a large scale.

In spite of the limitations of these tests, a very large percentage of animals infected with mastitis may be detected through the use of a combination of two or more of them. It appears, therefore, that when a herd has been examined with the tests, the infected cows are kept apart from the healthy ones, and other necessary sanitary precautions are regularly taken, the spread of mastitis may be reasonably well controlled. The services of a veterinarian should preferably be obtained so that the tests and other procedures selected for use may be based on his scientific knowledge of the disease.

W. T. Miller, *Bureau of Animal Industry.*

Mexican Fruit Fly Spread is Prevented by Strict Quarantine Enforcement

The Mexican fruit fly is one of the serious pests of fruit that has not yet become widely disseminated in this country. In Mexico this fly is probably the worst enemy of fruit with which the growers have to contend. In that country it inflicts heavy damage to the mango, citrus, and stone-fruit crops, the infestation in mangoes at times reaching 100 percent. Should this pest become established in the fruit-growing sections of the United States, untold losses would undoubtedly result. Although Mexico is carrying on a vigorous campaign against the fly, the duty of preventing its entry and dissemination in the United States rests upon the Bureau of Entomology and Plant Quarantine.

The lower Rio Grande Valley in Texas has developed in recent years into one of the major citrus-producing areas of the country. There has been no corresponding development on the Mexican side of the river, and not enough fruit is grown there to supply the local markets. As a result large quantities of fruit are brought to the

border towns from the fly-infested areas farther south. These towns are separated from the American groves only by the width of the Rio Grande, and the imported infested fruit is a continual source of infestation to these groves. The Mexican Government realizes this danger and cooperates in enforcing local control measures on the Mexican side of the river. However, since the fly is present practically throughout the fruit-growing areas and feeds upon a wide range of fruits, to prohibit the shipment of its known hosts from the known infested sections would deprive the local markets of practically all fruit.

There have been a number of sporadic infestations of this fly in the Texas groves since it was first known to have crossed the Rio Grande in 1927. As a result of the methodical examination of the bearing groves by inspectors of the Department of Agriculture, these infestations have been discovered in their incipient stages. Processing and destroying the fruit in the infested groves, followed by spraying the trees immediately upon the discovery of an infestation, has proved effective and thus far has prevented the fly from becoming established here. Because of these protective measures the citrus industry in the valley has grown in the face of a continued threat of reinfestation from across the river. By a system of shipment under permit, based on the inspection of the groves, the channels of commerce have been kept open to the products of the valley orchards with no danger to the other fruit-growing sections of the country. Without this protection the industry would have been strangled through loss of damaged fruit and adverse quarantines.

Traps and Attractants Used

Approximately 7 million of the 8¼ million citrus trees growing in the lower Rio Grande Valley have been planted within the last 7 years. With a million additional trees coming into bearing each year over which it was necessary to maintain supervision, it was found that sufficient time could not be devoted to the individual groves to determine accurately the presence or absence of an infestation. It was imperative, therefore, to develop some mechanical means of detecting infestations to supplement the manual inspection of fruit in the groves and packing houses. Traps and attractants were tried. A glass bell-type trap with fermenting malt as the attractant proved more effective than manual inspections during the fiscal year 1934, since in the majority of groves in which flies were trapped intense manual inspections failed to reveal larvae in the fruit. The difficulty in the use of traps lay in the impossibility of covering all groves continuously. Traps were accordingly operated in the more susceptible groves while manual inspections were continued in those less likely to harbor an infestation.

While the Mexican fruit fly has thus far been prevented from obtaining a firm foothold north of the Rio Grande, its continued repulsion depends upon constant vigilance.

P. A. Hoidale, *Bureau of Entomology and Plant Quarantine.*

Milk Sugar Produces More Rapid Growth in Young Animals Than Cane Sugar

Feeding a ration containing milk sugar to young laboratory animals causes them to grow more rapidly than others fed on a ration containing cane sugar. This greater rate of growth is due to the production of muscle and bones, not to the accumulation of fat. Adult laboratory animals, however, become heavier on a cane-sugar ration than on a milk-sugar ration, but the excess weight consists of fat. Laboratory animals, in general, live longer on a ration containing milk sugar than on one containing cane sugar.

These are conclusions derived from feeding experiments with rats carried out by the Bureau of Dairy Industry in the past few years. Similar results on growth of pigs have been obtained by workers in the Bureau of Animal Industry.

Although pediatricians and nutrition workers in general have realized for a long time that milk sugar differs from the other common dietary sugars in several rather striking characteristics, there has been much doubt as to what advantages, if any, milk sugar might have over other sugars from the nutritional standpoint. In fact, many pediatricians have for some years advocated the use of maltose and glucose instead of milk sugar in prepared rations for babies because of the more rapid and complete utilization of these sugars and because of the claim that there is likelihood of digestive disturbance when milk sugar is used. This claim has recently been shown to be unwarranted. Another recent investigation led to the conclusion that age weight for age weight, the lactose-fed infant possesses more living tissue than does the infant fed on vegetable sugar.

Experiments with Rats and Pigs

It was to obtain confirmatory and additional information on the nutritional effects of milk sugar, not only on young animals, but also on adult animals, that feeding experiments were conducted at the Beltsville laboratories of the Department of Agriculture. Since it was necessary to make post-mortem analyses of the whole bodies of the experimental subjects, rats and pigs were used.

In a representative series of experiments, balanced rations were used containing 63.5 percent of carbohydrate. Ration 1 contained 63.5 percent of dextrin; ration 2, 33.5 percent of dextrin plus 30 percent of milk sugar; ration 3, 3.5 percent of dextrin plus 30 percent of cane sugar. Groups of three rats of the same sex, age, and weight, were fed the three rations, each rat being on a different ration, and rates of growth were compared. Several sets were killed and analyzed at various stages of the experiment and the others were continued on their respective rations until they died naturally.

Regardless of whether the young rats on the milk-sugar and on the cane-sugar rations ate all they wanted or were limited to equal quantities of their food, those fed the milk-sugar ration grew faster than their partners on the cane sugar. But, after reaching what may be called adult age, the rats fed cane sugar became heavier than their partners fed milk sugar. Analyses of several adult rats showed that this difference in adult weight was due practically entirely to a difference in quantity of fat. Of the rats allowed to live until death occurred naturally, the milk-sugar fed rats survived longer than their cane-

sugar fed partners. Post-mortem examinations did not reveal any consistent cause of death for the rats on either ration. The effects of dextrin fed as the sole carbohydrate of the ration paralleled those obtained when cane sugar was substituted for part of it.

The fat percentages of the carcasses of hogs that had been fed a cane-sugar ration were considerably greater than those of hogs fed a milk-sugar ration. It was also observed that the flesh of the hogs on the cane-sugar ration was softer than that of the other hogs.

It is unsafe to claim that results identical with those obtained on animals would be obtained in experiments with human subjects, but it is probably true that somewhat similar differences in physiological effects would be found.

E. O. WHITTIER, *Bureau of Dairy Industry.*

MINNESOTA Land-Use Planning Study Points Way to State Action

A study of land-use planning in northern Minnesota, was completed last year by the Division of Land Economics of the Bureau of Agricultural Economics in cooperation with the division of agricultural economics of the University of Minnesota. Results of the study were published by the University of Minnesota Press in a book entitled, "Lands of Northern Minnesota; Their Use and Problems of Adjustment."

The major purpose was to define a program of adjustments for a large segment of the State including 14 of the northeastern counties.[4] Problems were attacked from a regional point of view, emphasis being placed upon the development of plans of action rather than upon the exploration of problems and causal relationships.

In the settlement of the cut-over lands of the State many mistakes were made. Lands too poor for farming were settled indiscriminately. Costly drainage projects were undertaken to reclaim vast areas of peat lands that subsequently proved too poor to support farm families. Roads were built and school facilities were developed in the vain hope of a dense population. Interest charges on the bonded debt, and the costs of providing simple functions of government for a scattered population, proved too heavy to carry.

Tax delinquency started as early as 1921. As collections decreased, levies and assessments were repeatedly raised in unsuccessful attempts to provide adequate revenues. The increased assessments and levies accentuated the amounts of tax delinquency. A system of tax abatements or "bargain settlements" was introduced as a means of returning delinquent lands to tax lists and raising revenue. Some money was collected from bargain settlements but the system induced rather wide-spread voluntary delinquency. Several counties have as much as 85 percent of the land area delinquent for general-property taxes. The State has assisted several counties with the interest on and principal payments of their bonds in order to avoid default.

Under existing law, 8 million acres or more will revert to the State in 1935 for the nonpayment of taxes. The problems facing the State are (1) how to manage this huge newly acquired domain, and (2) how to put units of local government back on a self-sufficing basis.

[4] Aitkin, Beltrami, Cass, Carlton, Cook, Crow Wing, Clearwater, Hubbard, Itasca, Koochiching, Lake, Lake of the Woods, Pine, and St. Louis.

Land Classification of 14 Counties

To assist in answering the first question, a tentative land classification of the 14 counties was made. All lands were placed in 1 of 2 zones, agricultural or conservation, depending upon soils, degree of stoniness, location, present use, and other factors. Suggested zoning legislation was drafted as a means of dedicating lands to the most appropriate uses. It was recommended that all land in conservation zones which reverts to the State be turned over to the conservation commission for management as forests, game refuges, etc., and that lands in agricultural zones which are suitable for farming and which revert to the State be sold and the proceeds divided among the various local taxing units to be used for the retirement of bonded indebtedness.

The problems of private and public ownership of forest lands were examined, and a suggested ownership and management program was outlined. Attention was given to methods of improved farm management, and problems involved in giving farm families an opportunity to relocate on better land were considered. Farm-record data indicated that it was impracticable immediately to clear wild land covered with green timber for new farms, and that even with delayed clearing the settler would have to accept a very low hourly wage if his farm development was to be financially successful. Budgetary analysis indicated that settler relocation would be feasible provided easily cleared lands were used where a settler could erect farm buildings and clear about 40 acres of crop land in 2 or 3 years, assuming a total mortgage indebtedness of not to exceed $2,500.

On problems of local government, estimates of possible savings arising from the relocation of settlement were made. A detailed financial study of units of local government was undertaken to determine possible savings by transferring functions to larger units and by consolidation of units. Estimated savings arising from the transfer of functions from townships to counties would approximate $199,100 annually for the 14 counties. School reorganizations would save $175,600 annually and county reorganizations $92,100 annually. By concentrating settlement in agricultural zones an additional $507,700 could be saved from the above sources, making a total estimated saving of about $974,500 annually. There are in the 14 counties about 5,000 families living in the suggested conservation zones. If these families could be relocated, savings in costs of local government would amount to about $100 per family per year. Under such a reorganization, the standards of roads, schools, and other services could be raised substantially.

The estimated savings in government costs alone would not put local units on a self-supporting basis, but they would be of material help.

R. I. Nowell, *Bureau of Agricultural Economics.*

Mosquito-Control Work Under C. W. A. Project Brings Many Benefits

Upon the establishment of the Civil Works Administration the need of selecting useful lines of employment for those out of work was at once apparent. The main objective was to put the unemployed to work quickly and to keep them usefully employed dur-

ing the winter of 1933–34. Therefore, it was desirable to use a large proportion of the funds for the employment of men and as little as possible for machines and materials. The relief of human distress by providing productive labor was the important thing, and this was kept in mind.

Mosquito control appeared to lend itself admirably to the needs of the situation. Accordingly, two Federal projects were approved, one on malaria control under the auspices of the United States Public Health Service with L. L. Williams, Jr., as director, the other on pest mosquito control under the direction of the Bureau of Entomology. The former project was carried on in 14 Southern States where malaria is a serious problem, and the latter in 32 States and the District of Columbia.

Mosquitoes are serious pests in parts of every State of the Union. Since they breed extensively in stagnant water, they are most troublesome in areas of considerable rainfall and along the coast where extensive salt marshes exist. They are also very troublesome, however, in the irrigated sections of the West and along rivers which at times overflow and flood considerable areas, thus creating numerous pools in the bottom lands when the flood waters subside.

Not only are mosquitoes responsible for the transmission of malaria and yellow fever, but they carry fowl pox, certain parasitic worms, dengue fever, and brain fever of horses. In addition to the part mosquitoes play in the transmission of this formidable array of diseases, they are also of great economic importance as annoyers of man, livestock, and wildlife. Considerable numbers of livestock have even been killed by the attack of hordes of mosquitoes.

In many areas mosquitoes are so abundant as to interfere with farm operations and to retard milk flow and torment all classes of livestock. The development of many areas for industrial and resort purposes has been held back by mosquito abundance. Thus there is every reason to make serious efforts toward the betterment of these conditions.

All mosquitoes require water for their development. Usually the water in which they breed is stagnant, or at least quiet and free from insect-eating minnows. This suggests at once the need of eliminating stagnant pools and of allowing fish to enter freely into all parts of ponds, lakes, and marshes. This is accomplished by several methods, such as the construction of dikes to raise the water level, the cutting of ditches to drain the stagnant pools or to permit the free ebb and flow of the tide, the straightening and deepening of the edges of streams and lakes, and the clearing of brush from overflowed areas and along streams.

Elimination of Breeding Places Gives Best Results

The elimination of mosquito-breeding places gives much more lasting benefits than does the use of oils, etc., for the destruction of the mosquito larvae. However, work of this type cannot be regarded as permanent, and provision for maintenance must be made.

In organizing the C. W. A. project for pest mosquito control, the Bureau of Entomology first selected a competent director in each State where the work was to be undertaken. The State entomologist was in most cases chosen for this position, his services being contributed by the State. An assistant State director and several supervisors and foremen, the number depending upon the number of men

employed, completed the supervisory force. Most of the supervisors and foremen, as well as the laborers, were chosen from the lists of the unemployed or from the relief rolls. As far as possible, the supervisory positions were filled by men with experience in this or related work. The importance of having properly trained men to direct the work became very apparent as the work progressed. The C. W. A. organization in the various States attended to the purchasing of tools and equipment and the assignment of laborers to the various subprojects as requested and handled all disbursements.

Unfortunately from the standpoint of efficiency, the work had to be started without delay, and thus there was little opportunity to make surveys much in advance. Furthermore, since the project was begun in the winter, when mosquito breeding was not going on, it was difficult to lay out the work to the best advantage. The severe winter in the Northeastern States was also a handicap, although the open win-

FIGURE 46.—Main drainage ditch through sandy soil, Cat Island, Miss., dug by C. W. A. workers as a mosquito-control measure.

ter in the Central and Western States was advantageous. The great demand for tools for the many projects requiring them made their procurement very slow and difficult. For the most part, tools and special equipment, such as rubber boots, were furnished by the Government.

The project was approved on November 28, 1933, and terminated on February 15, 1934. On December 14, 2,064 men were at work, and the number rapidly increased until a maximum of 21,817 were under employment on February 2, 1934.

The physical results of this project may be briefly summed up as follows: More than 1,930 miles of ditches were dug (fig. 46). About 400 miles of stream banks were cleared, deepened, and straightened (fig. 47). Dikes to the extent of 53,020 feet were thrown up. Metal and concrete culverts to the extent of 7,566 feet were put in, and about half as much more was reset or repaired. About 50 tide gates were installed. In dredging, filling, and excavating, about 400,000

cubic yards of dirt and rock were moved. Brushy areas totaling approximately 7,600 acres were cleared, and approximately 11,000 feet of tile drains were installed.

Indirect Benefits Realized

In addition to these accomplishments a number of other indirect benefits resulted from this work. The morale of many communities that had suffered severely from the depression was noticeably improved. The men showed an active interest in the project and the

FIGURE 47.—C. W. A. workers clearing, straightening, and deepening stream through marsh at Westminster, Md., in carrying out mosquito-control project.

benefits that the community might derive from their labors. The work demonstrated to hundreds of communities how mosquitoes may be controlled and trained groups of men throughout the land in mosquito-control methods so that they may intelligently carry on such work in the future. The elimination of unsightly dumps and pools around towns and in cities was highly appreciated by the citizens and helped to increase their pride in their communities and to make them realize the possibilities of concerted effort along these lines.

Several States arranged to continue the mosquito-control work as State projects after the closing of the Federal activity, and in many places the work was continued under county or local auspices.

While the work was terminated too soon to complete all the subprojects, many reports showing marked reduction in mosquito abundance were received by the Department during the summer of 1934.

F. C. BISHOPP, *Bureau of Entomology and Plant Quarantine.*

NITROGEN Balance Sheet Shows Annual Deficit Requiring Replacement

Some idea of the removal of fixed nitrogen from the soil by crops may be gained from the fact that the 889,702,000 bushels of wheat and 1,733,429,000 bushels of corn harvested in this country in 1930 contained over 1,400,000 tons of nitrogen. The total capacity of all the commercial plants in the United States for manufacturing fixed nitrogen artificially is less than 250,000 tons of nitrogen. In addition to the losses of fixed nitrogen through removal of crops, there are other losses due to leaching, surface washing, denitrification, etc.

Natural Nitrogen-Fixing Processes

Originally man was dependent solely on natural nitrogen-fixation processes for supplying to the soil the nitrogen compounds which were required by his crops. Electrical and possibly photochemical processes occurring in the air fix small amounts of atmospheric nitrogen. The compounds thus formed, together with the fixed nitrogen in floating bacteria, plant spores, dust of organic origin and ammonia, which has escaped into the air as a result of the disintegration of nitrogenous organic matter, are brought down by rain and snow to benefit the soil by the nitrogen so received. Also the soil is inhabited by free-living bacteria and other micro-organisms which, in their life processes, abstract nitrogen from the air and fix it in chemical combinations.

In addition, other soil bacteria have the power of entering the tissues of certain higher plants, such as the legumes, and fixing atmospheric nitrogen in cooperative relationship with them though they apparently do not fix nitrogen when living an independent existence. The gains in nitrogen as a result of these natural fixation processes are more or less balanced by various naturally occurring chemical and bacterio-chemical reactions which liberate both free nitrogen and ammonia so that the amount of fixed nitrogen actually present in an uncultivated fertile soil at any time is seldom, except in peat soils, as high as 0.5 percent of the weight of the surface soil.

Experience has taught that, under most conditions, the continued growing of crops other than legumes upon a given soil, with the removal of these crops year by year, results in a continual decrease in crop yields, usually due to a decrease in the fixed nitrogen content of the soil since nitrogen is most often the limiting plant-food element in soils. Through experience it was also learned that the supply of fixed nitrogen to soils by natural fixation processes might be supplemented by the addition of natural manure and other waste nitrogenous materials of vegetable and animal origin. Finally knowledge was acquired that inorganic-nitrogen compounds were also efficient sources of plant-food nitrogen. As a result of this knowledge came the utilization for fertilizer purposes of natural accumulations of nitrates and, later of ammonium sulphate, a byproduct of the coking of coal, the metamorphosed remains of prehistoric plants.

Artificial Nitrogen-Fixing Processes

Enlarging requirements for fixed-nitrogen supplies finally led to efforts to bring about the artificial fixation of atmospheric nitrogen. The first commercially successful process for doing this, known as the

electric-arc process, was attained in 1904 through imitation of the natural fixation by electrical discharges. Shortly afterwards, the cyanamide process, in which lime is caused to react with coke to form calcium carbide and this product in turn reacts with nitrogen to produce calcium cyanamide, was introduced. Finally in 1913 came the synthetic-ammonia process, in which nitrogen is combined directly with hydrogen to form ammonia. Although the newest of the nitrogen-fixation processes, this has outstripped the other two in importance and is, in fact, the only method commercially used in the United States. Although natural nitrogen-fixation processes will always remain the principal source of soil nitrogen, the natural supply may now be supplemented by products derived from these artificial processes to any extent which proves profitable.

Fixed-Nitrogen Losses

An estimated balance sheet for the nitrogen of our soils, based on such data as are available, is as follows:

	Short tons
Annual loss, 60 pounds per acre, 300,000,000 acres	9, 000, 000
Annual gain from—	
Manure of domestic animals	1, 750, 000
Atmospheric precipitation	1, 000, 000
Free-living micro-organisms	1, 000, 000
Legumes	1, 750, 000
Applied fertilizers	200, 000
Total	5, 700, 000
Net annual loss	3, 300, 000
Total	9, 000, 000

Although such a balance sheet is a rough approximation only, it nevertheless portrays the enormous annual loss of nitrogen.

Methods for Meeting Losses

The large annual deficit in the balance sheet may be reduced to some extent by better control of the losses that are due to leaching and surface washing or erosion. Good methods of tillage can conserve the moisture of the soil and keep the soil in suitable condition for bacterial activity. Cover crops particularly may be grown to prevent erosion.

In regions where soil conditions, rainfall, etc., permit the growing of legumes, these crops may be used to return to the soil a part of the nitrogen removed by other crops and in some localities possibly all the nitrogen required may be supplied by such means. Adverse soil conditions may largely eliminate the legume-bacteria population from the soil and when a new legume crop is introduced it may be necessary to bring in the proper bacteria also. By the isolation and selection of high nitrogen-fixing strains which can be propagated and maintained in pure culture, by the utilization of lime, phosphates, and other fertilizers for the correction of conditions detrimental to these organisms, and by the selection of suitable species or varieties of plants the efficiency of legumes as fixers of nitrogen has been greatly improved.

The elimination of waste in the handling of crop residues and animal manures and the return of these to the soils is highly important because not only is nitrogen thus conserved but a supply of organic matter as humus to promote bacterial activity is also maintained.

The final inevitable deficit must be met by an intelligent use of nitrogenous commercial fertilizers.

ALBERT R. MERZ, *Bureau of Chemistry and Soils.*
LEWIS T. LEONARD, *Bureau of Plant Industry.*

PARLATORIA Date Scale Nears Extermination in Cooperative Campaign

When several varieties of date palms were brought into this country 30 to 40 years ago in an effort to find some that were adapted to the desert areas of the Southwestern States, a scale insect, the Parlatoria date scale, was accidentally introduced. This insect thrived in its new environment, and it was soon evident that dates could not be grown with profit unless an economical method of controlling the scale were devised.

After considerable experimental work, it was found that control, that is, keeping the insect down to such numbers that the production of marketable fruit is possible, would be very expensive, probably prohibitive in cost. Several facts supported this conclusion. The scale, which breeds on the foliage and fruit, is also found on the broad leaf bases, which are protected from spray or gas by several bands of fiber. Scales in such situations would be a constant source of reinfestation, even though those on the exposed parts of the palm might be checked. Thousands of seedling date and other varieties of palms, hosts of the Parlatoria date scale, are used for ornamental purposes in the date-growing areas and would also serve as centers of reinfestation.

Eradication of the pest was then considered, and it was decided that the complete elimination of the insect was feasible. The hope of success was based on the belief that by careful inspection palms lightly infested with scale could be located and the scale eliminated before the infestation spread to other palms. A campaign with that in view was initiated in 1921 under a Federal appropriation for the purpose. The infestation proved to be much more persistent and difficult to handle than was anticipated. In 1928 the work was reorganized on a cooperative basis, with an increased Federal appropriation and with the California Department of Agriculture and the office of the State entomologist of Arizona actively participating with the date growers.

In order to prevent the mechanical spread of the scale, no date palms or offshoots have been allowed to be moved out of the known infested areas, and shipments within those areas have been permitted only after inspection indicated that the plants were free from scale. The heavy infestations have been located by scouting inspection over the entire date-growing area, and the light infestations detected by frequent, intensive inspections in the surrounding areas of possible spread.

As the Parlatoria date scale is a very small insect, about one-eighteenth of an inch long, careful scrutiny is necessary to locate light infestations. The small palms can be inspected from the ground, but to reach the fronds of the larger palms step ladders from 10 to 20 feet high are used. Garden palms too tall for inspection from a 20-foot ladder are examined from a tower mounted on a truck (fig. 48), and for tall palms in door-yards or other places not accessible by truck extension ladders are employed.

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Infested palms are treated by removing all the foliage, cutting the fronds back close to the fiber, except those growing directly from the bud at the top of the trunk, which are cut back until they are about a foot in length. The surface is then scorched with a torch or sprayed with oil emulsion. Where the scale is below the fiber, it is necessary to remove the fiber and cut the leaf bases off near the trunk. This process causes the total loss of fruit for 2 years, and the third year a crop about one-half the normal size is produced.

FIGURE 48.—Truck and tower for inspection of tall date palms for presence of the Parlatoria date scale.

As a result of scouting inspection thousands of seedling date palms of no value, many infested with scale and all difficult to inspect, have been found in the desert brush or along irrigation ditches. Some of these palms have been dug out and destroyed, while others have been pruned so that they can be properly inspected.

The campaign as conducted under the cooperative agreement has been in operation since 1928, and steady progress has been made. During the fiscal year 1929, 1,591 infested palms were found on 99 properties; in the fiscal year 1930, 621 infested palms were found on 65 properties; in 1931, 231 infested palms on 31 properties; in 1932, 59 infested palms on 13 properties; in 1933, 8 infested palms on 5 properties; and in 1934, 11 infested palms on 1 property. Since 1930 the area in which intensive operations have been carried on has been gradually reduced. Only one garden is now (1934) considered an active infestation.

B. L. BOYDEN, *Bureau of Entomology and Plant Quarantine.*

PASTURES That Are Well Managed Serve as Means of Drought Insurance

In times of drought the value of pastures and range is impressed upon farmers, ranchers, and others concerned in livestock production. Although a drought may begin during the winter, its effects are not keenly felt until the pastures dry up the following summer. Cattle sold under such unfavorable conditions have a low value for meat. If the drought is widespread, the demand for stockers and feeders is correspondingly reduced and the financial loss is thereby pyramided.

The economy of pasturage as a source of feed is doubly evident when it becomes necessary to purchase substitute feed during the grazing season. This is often necessary to maintain breeding and work stock and to keep milk cows from falling off in milk production. Under ordinary conditions, wintering livestock on harvested feeds for from 4 to 6 months costs from 2 to 4 times as much as grazing them during the remainder of the season. Accordingly, shortening the grazing season even 1 month may wipe out the possibility of profits in animal production. Prolonged droughts such as that of 1934 seriously injure and may even wipe out herds and flocks entirely, leaving effects that are felt for years. Such facts, resulting from observations and experiments, point definitely toward the need of a reserve of feed suitable for grazing.

FIGURE 49.—Western ranges are improved by allowing the grass to mature occasionally. Such grass cures well on account of the light rainfall and supplies a reserve feed.

When there is more pasturage for livestock at the beginning of the season than they can use, it may be fenced off and used for hay or silage. Oftentimes pastures are better the following year as a result of this practice. Another method is to leave the growth undisturbed for use as winter pasture (fig. 49). Such a pasture has a value much above that of the actual feed obtained because it provides a place for breeding herds and work stock to exercise in the winter when meadows or other fields are not suitable. The feeding of roughage on the thick sod of a winter pasture saves labor in feeding and in hauling manure and keeps the stock out of the mud during wet weather. When the soil is frozen or dry, such feeding may be done on thin or bare spots to improve their productiveness. Reserve pastures from which livestock are excluded throughout a grazing season are helpful in reducing parasitic infection and the spreading of disease.

Root Reserves and Reseeding

In the case of western ranges, root reserves and reseeding play an important part in increasing productivity. Through saving part of the range for drought insurance, an opportunity is afforded for seed heads to form. This unrestricted growth of the plant above ground makes possible a corresponding growth below ground. The greater root system makes more water available for the growth of the plants. The reserve of feed is correspondingly increased.

The exclusion of grazing animals from a part of the range each year is necessary to give the plants near watering places, which are commonly overgrazed, a chance to come back. This practice not only provides a reserve and increases the gross production but results also in a better quality of feed. On good range the more valuable grazing plants, which would otherwise be killed out by continuous overgrazing, are given an opportunity to maintain themselves. Even on depleted range, grazing plants will eventually reestablish themselves if livestock are excluded.

There is still another great advantage in having reserve grazing for drought insurance. Where land has any appreciable slope and is

FIGURE 50.—Closely grazed green grass is rich in proteins, minerals, and vitamins. It is also highly digestible and is therefore an excellent substitute for grain as well as roughage in feeding livestock for productive purposes.

subject to erosion, the greater the growth of grass the less erosion occurs. On overgrazed land erosion may take place as fast or faster than on cultivated soil, because loose soil absorbs water more rapidly than bare, compact soil. Keeping a good cover of grass on such land prevents practically all loss of topsoil, whereas if the field is left bare erosion may cause the rapid loss of the productive topsoil.

Immature Grass Rich in Proteins

In reserving part of the pasture in humid areas it is possible to graze the remainder in such a way that extensive production of seed heads is prevented and the maximum quantity of highly nutritious feed is obtained. Although greater gross production of dry matter

may be obtained by allowing much of the grass to mature before it is eaten, as much or more digestible nutrients are commonly obtained from closely grazed pastures. The immature grass is comparatively rich in protein and phosphorus and is as digestible as most concentrates, whereas mature grass is considerably lower in protein and phosphorus, higher in crude fiber, and considerably harder to digest (fig. 50). Accordingly it is possible to build up a reserve of feed which may be cut for hay or grazed as an emergency measure, and at the same time to have the stock on more nutritious feed than if they had access to the whole pasture area. In general such reserves of mature grass are valuable principally for maintenance when they constitute the only feed. In maintaining more pasturage than the herds and flocks need under normal conditions, and building up a reserve of hay or grass silage, the farmer can thereby provide the cheapest form of harvested feed, and in the case of silage the most indestructible form for reserve feed. Such feed reserves tend toward more balanced, uniform, and profitable production over a period of years which may include severe droughts.

A. T. Semple, *Bureau of Animal Industry.*

Pear Production Increased by Maintaining Adequate Soil Moisture

The maintenance of an adequate supply of soil moisture is recognized as one of the most fundamental factors in successful fruit farming, but there has been some question as to what constitutes a sufficient soil-moisture supply for different fruits, or for the same fruits in different environments. With the object of determining the soil-moisture needs of pear trees growing in heavy soil, irrigation experiments have been conducted at Medford, Oreg., by the Bureau of Agricultural Engineering for 5 years and by the Bureau of Plant Industry for 3 years.

Frequent Irrigation Decreases Production Cost

Increased yield, secured through maintenance of highly available soil moisture resulted in a decreased production cost per box. (By available soil moisture is meant the moisture available for plant use.) The heavier orchard operation costs such as pruning, spraying, orchard heating, etc., are not materially affected by yield variations in mature trees, but the cost per box of packed fruit is naturally less as yield per tree is increased. It has been found that production costs per packed box have been decreased as much as 40 percent by irrigating frequently.

Yield is the product of number of fruits times average size. By increasing the bearing area the number of fruits per tree may be increased. Holding soil moisture highly available in all portions of the root zone results in increased vegetative growth and vigor. The Anjou pear tree usually blooms very heavily, as many as 33,000 blossoms per tree having been observed. This heavy blooming has a devitalizing effect upon the tree, and a large number of the buds that set fail to hold the fruit. This premature drop, commonly called the "June drop", is often excessive on heavily blooming trees, leaving a relatively light crop to be matured. Maintaining a highly available soil-moisture supply during the period of fruit-bud differentiation in June has

resulted in a reduction of the number of buds differentiated into fruit buds with a consequent bloom reduction the following spring. With fewer blossoms, however, fruit set and total yield have increased.

The degree of availability of soil moisture has a marked effect upon the rate of volume increase of pears on heavy soil. It has been found that the moisture content of the major portion of the root zone should be maintained at not less than 80 percent of the available capacity if maximum fruit volume is to be obtained. Allowing any material portion of the root zone to decrease below 50 percent of the maximum available soil moisture has resulted in materially lessening fruit growth and, consequently, in lower yield. These results apply only to heavy, adobe clay soil such as that which forms the major portion of the pear acreage near Medford, Oreg. Results by other workers on lighter soils indicate that such soils may become relatively much drier before decreased fruit growth occurs.

Rate of fruit-volume increase is not constant throughout the growing season. As the fruit enters the period beginning about 40 days prior to harvest its daily rate of growth increases, and in this 40-day period as much or more volume increase is made as during the 70- or 80-day period prior to the last growth spurt. It has, therefore, been found especially important to maintain highly available soil moisture during this 40-day period before harvesting. The Oregon results show that if there is sufficient residual moisture in the soil from winter and spring rains to carry the trees and fruit through the early summer without undue stress, storage water should be conserved and applied during the period when it will give maximum benefit in increasing fruit size. Maintaining highly available soil moisture by frequent irrigation during the early growth period of the fruit only and then, by withholding irrigation, allowing soil moisture to decline to a low point of availability at or prior to harvesting has resulted in a greatly decreased yield.

In those pear varieties, such as Bartlett, that usually require thinning in order to bring the crop to marketable size it has been determined that the maintenance of highly available soil moisture increases the efficiency of the leaves, and that fewer leaves per fruit are required to manufacture plant foods. By increasing leaf efficiency more pears per tree will reach marketable size, and yield will be increased.

Importance of Roots

A positive correlation has been found between the observed density of small, visible roots and the rate of soil-moisture extraction. It has been determined for mature Anjou and Bartlett trees rooted in heavy clay soil not over 6 feet deep, that of the roots in the top 4 feet approximately 34 percent of the feeder roots are located in the upper foot of soil below the mulch, 28 percent in the second foot, and 22 percent in the third foot, a total of approximately 84 percent thus being in the upper 3 feet. Comparatively few roots extend beyond a depth of 4 feet hence if the soil-moisture content of the upper 3 feet is carefully regulated the lower rooting levels will not require much attention. At each irrigation, however, sufficient water should be added to bring the entire root zone to field capacity.

The concentration of feeder roots per cubic foot of soil is about uniform throughout the zone having inner and outer radii of 6 and 14 feet, respectively, from the trunk. On either side of that zone the

root concentration decreases slightly. This indicates that in mature pear orchards the entire soil surface should be wetted at each irrigation.

It appears that immediately subsequent to irrigation each extracting root hair may be in contact with a water film. As the roots extract moisture and the films retreat the root hair must project itself into a new moisture-extracting position or water must move to the root. It is inconceivable that roots should come in contact with each particle of soil and its enveloping water film. In fact, it is known from observation that throughout the rooting space there are areas in which no roots are visible. Therefore, it is felt that some water movement to roots must occur. Because this heavy soil is only slightly pervious the rate of moisture movement within certain limits seems slower than the ability of the roots to absorb water when it is freely available. As the water films retreat from the absorbing root surfaces an envelop of dry soil may be left around each root hair. The moisture content of this dry soil envelop may be at or very near the permanent wilting percentage while the moisture content of the soil a very short distance from the root may still be highly available but moving to the root at a very slow rate. As an increasing number of root hairs lose contact with the receding water films and the dry soil envelops become more extended, it probably becomes increasingly difficult for the roots to secure sufficient water from the soil to satisfy plant needs. This seems particularly the case during hot weather and during periods of maximum vegetative and fruit growth.

Since soil-moisture content, determined with our present technic, is the average moisture content within and without these dry soil envelops, the indicated soil moisture may be actually higher than that immediately in contact with the root hairs.

Soil moisture in cropped land is never static. The forces of gravity, surface tension, and suction pull by roots are continually at work distributing and readjusting moisture in the soil. The Oregon irrigation experiments show that soil-moisture conditions may be profitably controlled.

R. A. Work, *Bureau of Agricultural Engineering.*

PHONY Peach Disease Control is Promoted by Destroying Wild Peach Trees

Although the peach is not native to the United States, the climate and soil of the Southeastern States are so well adapted to its needs that it became readily naturalized there at an early date. From the extensive home and commercial orchards that were planted, trees have escaped from cultivation and produced prolific numbers of "wild" seedlings. Today, in Georgia alone there are many millions of these wild seedlings, ranging from small bushes to old trees 30 feet or more in height, scattered throughout the State, and similar conditions exist over practically the entire region. Occasionally these seedlings are found on terraces, particularly in old, abandoned fields, and along fence rows. More commonly, however, they grow along the edges of woods, intermingled with elderberry, persimmon, alder, and sweetgum, and frequently almost smothered with honeysuckle. In such positions they are inconspicuous, and it is seldom that a landowner realizes their presence, even if he is an orchard owner. Yet these wild peach trees constitute a serious menace to the succesful

operation of a commercial peach orchard, because they are liable to attack by all the insects and diseases that attack cultivated peaches and serve as a reservoir of infestation and infection for the commercial orchards, no matter how well these are cared for.

Within 2 years after the commencement of the campaign to eradicate the phony peach disease, it was found that numerous orchards that had been thoroughly cleaned up were being reinfected from some outside source. Surveys and careful scouting around such plantings brought to light the presence of infected wild peach trees growing near the orchards, and it was evident that the disease could not be controlled permanently in the orchards unless it was also controlled in its wild hosts.

First discovered during the nineties, the phony peach disease has already caused tremendous losses to growers in central Georgia. Prior to the commencement of the eradication campaign, in 1929, it had become so prevalent in many orchards as to bring about the abandonment or destruction of over a million trees and had forced several growers into bankruptcy. The disease has not restricted its ravages to one locality, however, but has been steadily spreading and increasing in importance, until it now occurs in 13 States. It may prove to be as serious throughout the country as it has already shown itself to be in central Georgia.

Thus the future of the peach industry of the country might well depend on the control of the phony disease in wild peach trees. An annual inspection of these millions of seedlings was an obvious impossibility. The trees were worthless, even when not harmful, and the obvious thing to do was to destroy them outright, but this could be done only by means of large forces of laborers. No appreciable good effect could be anticipated with the inspection force available for the work.

When the situation appeared most hopeless, the Emergency Relief Administration set up an organization to furnish immediate work for thousands of the unemployed. Among other Federal projects, they authorized one for the eradication of wild peach trees in Georgia and Alabama, where the phony peach disease is seriously prevalent, and where there are large commercial plantings or important peach-growing nurseries.

In Georgia the Civil Works Administration furnished a force of 948 men, who worked in 42 counties. In Alabama 111 men were employed, and work was carried on in 3 counties. The projects were set up shortly after the middle of December and continued through February 15, at which time the Federal projects terminated. Beginning on February 16, State projects were set up, furnishing 448 men in 12 counties in Georgia and 61 men in 3 counties in Alabama. Work ceased in both States on March 29.

Results of Campaign Satisfactory

These forces destroyed a total of 4,724,659 trees, 4,248,802 in Georgia and 475,857 in Alabama. While it was not expected that every wild tree could be found and destroyed in a single inspection, the results of this first campaign were very satisfactory. In a few counties the majority of the seedlings were eradicated, and in all of them a good proportion of the wild trees growing close to commercial orchards were removed. Because of the long incubation period of the

phony peach disease, the direct effect of this work on the spread of the disease will not be evident for 2 years. However, the destruction of the wild hosts must be of direct benefit, since it removes a source of infection. Indirectly it has already assisted materially in the eradication campaign. With the majority of the seedlings gone in several counties, there is no longer any need to devote much time to them, and this time can now be given to commercial-orchard inspection, making it possible to cover many more orchards than could be handled formerly.

Although the purpose of the campaign was to control the phony disease, it has brought other benefits. All insects and diseases that attack a crop add materially to the cost of producing that crop, and frequently are the deciding factor between a profit and a loss. The destruction of these wild peach trees, which harbor not only the phony disease but all the other enemies of the peach as well, should aid the growers in controlling all the pests that attack their crop and thus enable them to produce a better quality of fruit at some decrease in cost of operation.

The project received the hearty support of all concerned and is considered to have combined successfully immediate unemployment relief with permanent agricultural and community benefit.

W. F. Turner, *Bureau of Entomology and Plant Quarantine.*

PHOSPHATE Blast Furnace is Nucleus for Balanced Fertilizer Trade in West

Were it not for their accessibility to sources of fertilizers, certain eastern and southern agricultural lands would be called marginal more often than is now the case. These lands have long been served by the phosphate deposits of Florida and Tennessee; by the potash mines of Europe, and by the nitrate deposits of Chile, with products deliverable at many close-by ports by water transportation, and by coke ovens, widely distributed, which supply byproduct ammonia at low production and distribution costs. Hence soil fertility in these areas has long since become not a matter of nature but of soil management. It is not a coincidence that this area of relatively heavy fertilizer application is accessible to relatively low-cost supplies.

The term "heavy application" is used comparatively. The comparison is with the vaster areas of the West and Middle West, where at no time have fertilizer supplies been accessible except when imported from long distances at freight charges representing a disproportionate part of their cost. This cost is not necessarily prohibitive, for cost must be measured in terms of profits from use; but relatively fertilizers are high in the West and unquestionably their costs have been an effective deterrent to their more general use in that section.

Federal surveys have determined the location and extent of the fertilizer resources of the West. Considerable research has been conducted in the Fertilizer Technology Division of the Bureau of Chemistry and Soils to develop feasible methods for their commercial utilization—methods capable of employing locally available raw materials, and yielding high-grade products susceptible of low-cost distribution. Abundant supplies of raw materials have been found for the production of potash, phosphates, and nitrates, the essential ingredients of

commercial fertilizers; and substantial progress has been made in the development of an appropriate technology.

Potash industries are now established in southern California and New Mexico. They produce with highly developed technology an excellent grade of potassium chloride. Despite their distance from the East, and the resulting high freight charges, they supplied in 1933 almost 40 percent of the potash used in the East. Abundant raw materials in addition are represented by the polyhalite deposits of Texas and New Mexico, the alunites of Utah, the leucitic larvas of Wyoming, and the natural brines of Nebraska and Utah.

Of phosphate rock there is a superabundance. The phosphate deposits of Idaho, Wyoming, Montana, and Utah represent the world's greatest known phosphate reserves.

The great coal deposits of Wyoming, and the supplies of natural gas of that and other States, represent inexhaustible sources of basic raw materials for nitrate production from the air by the modern synthetic methods. Ammonia synthesis has freed the farmers of this country from exclusive dependence on foreign nitrate deposits, and brought close to the farm an inexhaustible supply at costs far below those formerly paid. But the great nitrate plants of the East, while at the door of the eastern farmer, are still far removed from the farms of the West.

Here are raw materials of such abundance, diversification, and distribution as to offer the potentialities for fertilizer manufacture adequate to the all-time needs of western agriculture.

In their utilization there should be applied a technology representing the most recent developments in chemical engineering. These developments involve a radical departure from established processes. The three basic plant-food elements must be combined into high-analysis compounds to eliminate freight charges on useless ingredients, so as to make wide distribution possible. The operation must be profitable if private capital is to be employed. These are problems with which the Department is now engaged.

As the American fertilizer trade is organized, the mixture sold is designed to supply the plant-food elements in which the average soil is apt to be deficient, and to which the growing plant makes most ready response. Without discounting the relative importance of any one plant food, emphasis has been placed in the past on phosphates. Many years of experience on a diversity of soils and crops has shown that a mixture is so much better than the separate ingredients used singly, that for the sale of one, supplies of the other two are essential. For a satisfactory fertilizer industry for the West, therefore, the production of all three elements is required. At present, potash produced in the West must seek its market in the East where supplies of phosphates and nitrates are abundant.

Blast-Furnace Smelting of Phosphate Rock

Accordingly, the Department has devoted special attention to phosphate production and has developed in its laboratories the technology of blast-furnace smelting of phosphate rock to yield agricultural phosphates. Because this process requires cheap coal as a fuel, a location has been sought where phosphate rock and coal are to be found close together. One location is the Green River section of Wyoming,which is within shipping radius of the phosphate deposits of both Wyoming

and Idaho. Close by are the leucitic lavas from which potash can be recovered by smelting; or potash can be delivered to this section from the mines of New Mexico or from California en route to the eastern market.

With the blast-furnace process now under large-scale demonstration in comparison with the electric-furnace method by the Tennessee Valley Authority at Muscle Shoals, Ala., the question of profitable operation will be answered. It appears to be the most feasible method of processing the western phosphates, and is designed specifically for that use.

As a nucleus around which to build a well-balanced fertilizer industry, the phosphate blast furnace affords the basis of new activities that bid fair to become an essential part of the industrial and agricultural development of the Northwest which now seems certain as the result of current water-power and irrigation enterprises. Such an industry would assure to that vast area the many, enduring benefits represented by abundant supplies of low-cost plant food.

J. W. TURRENTINE, *Bureau of Chemistry and Soils.*

PHOSPHATE Fertilizer Prepared by Treating Phosphate Rock With Steam at High Temperatures Domestic phosphate rock consists principally of fluorapatite, an insoluble compound which contains calcium phosphate and fluorine. Recent laboratory studies have shown that when phosphate rock, containing about 5 to 10 percent of silica, is heated in the presence of water vapor at about 1,400° C., the fluorapatite is decomposed, upwards of 95 percent of the fluorine is volatilized and 80 percent or more of the phosphoric oxide (P_2O_5) is converted into the citrate-soluble (available) condition.

The results of experiments with Florida land-pebble phosphate rock show (fig. 51) that no increase in the citrate solubility of the phosphoric oxide occurs until about 63 percent of the total fluorine is volatilized. From that point, however, the citrate solubility of the phosphoric oxide increases with increase in the percentage of the total fluorine volatilized. Removal of only 30 to 60 percent of the fluorine causes the citrate solubility of the phosphoric oxide to decrease below that of the phosphoric oxide in the untreated rock.

The process seems to have possibilities for the production of cheap phosphate fertilizer. It can be carried out in direct-fired rotary kilns and is applicable to all of the regular commercial grades and types of phosphate rock produced in this country at present.

Properties of Calcined Phosphate

Some of the properties of the product, which for convenience may be called calcined phosphate, are summarized briefly, as follows:

The product is obtained in the form of a sintered or semifused clinker which, unlike superphosphate, requires no aging and needs only to be ground to the desired fineness for fertilizer purposes. It is practically insoluble in pure water, is weakly alkaline in reaction, has no deleterious effect on fertilizer bags and machinery, and should prevent, to a considerable extent, the increase in soil acidity caused by the use of ammonium salts as fertilizers. Although the alkalinity of the mate-

rial is sufficient to cause some loss of ammonia from ammonium salts in fertilizer mixtures, it is believed that it will be possible to overcome this disadvantage.

The properly prepared material should contain about 30 percent or more of citrate-soluble (available) phosphoric oxide, as compared with about 19 to 21 percent in the best grades of ordinary superphosphate. The chemical nature of the available phosphate in calcined phosphate

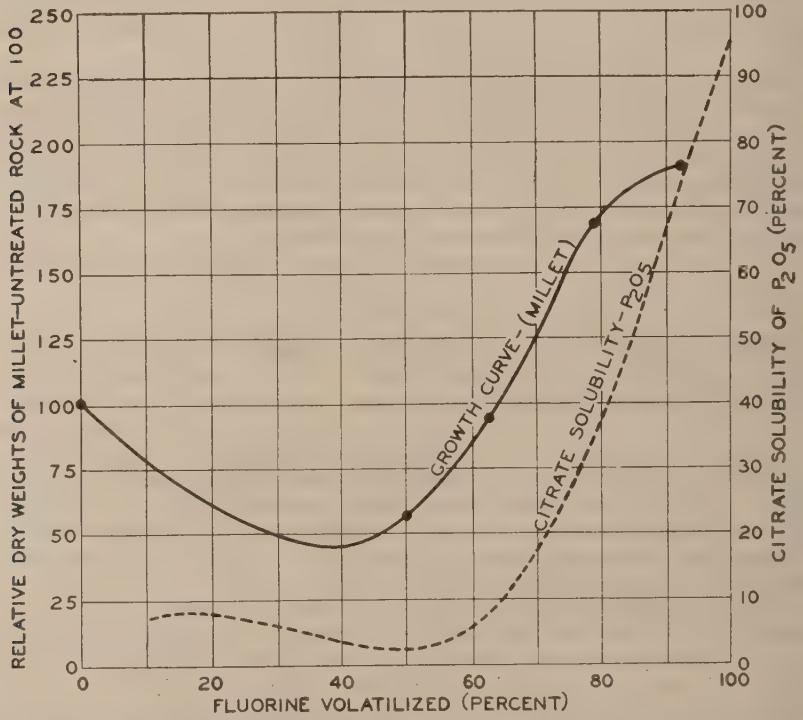

FIGURE 51.—Relation between volatilization of the fluorine from phosphate rock and the citrate solubility and nutrient value of the phosphoric oxide (P_2O_5). Until more than 60 to 65 percent of the fluorine is volatilized from phosphate rock by the calcination process the solubility of the phosphoric oxide in neutral ammonium citrate and the growth of millet are depressed below the results obtained with the raw phosphate rock. With greater removal of the fluorine both citrate solubility and plant growth are increased. (See fig. 52.)

is not definitely known but it is believed to be similar to that of the phosphate in basic slag, the phosphatic byproduct of the smelting of high-phosphorus iron ores, which is widely used as a fertilizer in Europe. Calcined phosphate not only is superior to superphosphate in physical properties but it markedly improves the physical properties of fertilizer mixtures in which it is present.

Because of its low fluorine content, calcined phosphate has possibilities as a substitute for bone meal in the preparation of mineral feeds for livestock. Also, the fluorine volatilized during the manufacturing process is a possible source of fluorine compounds for industrial and technical purposes and for use as insecticides.

Finally, the high citrate solubility of calcined phosphate indicates that it should be an efficient fertilizer material.

Plant-Food Value of Calcined Phosphate

In order to determine the plant-food value of calcined phosphate, greenhouse pot experiments were carried out with millet as a test crop, using a phosphorus-deficient Norfolk loamy fine sand soil. In the preparation of the calcined phosphates used in these tests about 50 to 97 percent of the fluorine content of the phosphate rock was volatilized and the citrate solubility of the phosphoric oxide in the products ranged from about 7 to 86 percent. Tests were also made with ordinary superphosphate and dicalcium phosphate as standard sources of phosphoric oxide. The phosphates were applied in 4–12–6 fertilizer mixtures at the rate of 240 pounds of total phosphoric oxide

FIGURE 52.—Growth of millet with calcined phosphate. Phosphate treatment: 1, superphosphate, 2, dicalcium phosphate; 3, raw Florida pebble phosphate rock, 3.85 percent fluorine; 4, calcined phosphate, 2.08 percent fluorine; 5, calcined phosphate, 1.49 percent fluorine; 6, calcined phosphate, 0.85 percent fluorine; 7, calcined phosphate, 0.4 percent fluorine; 8, calcined phosphate, 0.27 percent fluorine; 9, calcined phosphate, 0.1 percent fluorine. The percentages of fluorine removed from the phosphate rock in the preparation of the calcined phosphates were as follows: No. 4, 50; no. 5, 64; no. 6, 79; no. 7, 90; no. 8, 93; and no. 9, 97.

per acre, equivalent to 1 ton of the complete mixture per acre. The growth of millet resulting from the different treatments is shown in figure 52.

Calcined phosphates from which only 50 to 64 percent of the fluorine had been removed (groups 4 and 5) gave smaller crop growths than did the untreated phosphate rock (group 3). With the removal of greater percentages of fluorine larger increases in growth were obtained (groups 6 to 9), and the calcined materials from which 90 to 97 percent of the fluorine had been removed (groups 7 to 9) gave better results than did ordinary superphosphate and dicalcium phosphate (groups 1 and 2).

As shown in figure 51, there is a more or less close correlation between the citrate solubility and the plant-food value of the phosphoric

oxide in calcined phosphate, and both of these properties are correlated with the proportion of the fluorine removed during the manufacturing process.

Other greenhouse tests with millet and other crops substantiate the results presented here, in showing that the fertilizer value of calcined phosphate, with 90 percent or more of the fluorine removed, compares favorably with that of superphosphate and dicalcium phosphate.

K. D. Jacob, B. E. Brown, and F. R. Reid,
Bureau of Chemistry and Soils.

Ponderosa Way—A Firebreak Between the Lowlands and the Higher Timbered Belt

On the long slopes rising gradually from the central valleys of California to the mountain summits on the east, the United States Forest Service is completing a 650-mile firebreak, known as the Ponderosa Way, extending from Pit River on

Figure 53.—The Ponderosa Way, a firebreak between the lowlands and the timber on higher elevations.

the north to Kern River on the south. Seen from the air the Ponderosa Way is a wide strip cleared of all vegetation separating the belt of grassy woodland and chaparral of the low country from the timber on the higher elevations. In some places it follows the contour of the hills, in others it dips into the canyons and gulches (fig. 53).

The Ponderosa Way takes its name from a commercial timber tree, formerly called western yellow pine, which forms over 60 percent of the total stand of timber in California. Extensive in its range, ponderosa pine is the first commercial tree encountered as one climbs from the hot, dry lowlands to the higher country. Formerly it reached much further down into the valleys but lumbering and forest fires have now driven it back many miles.

Firebreaks are built to stop the front of an advancing fire, and are simply lanes cleared of all inflammable material. Their width depends upon various factors such as the height of the trees, shrubs, or other vegetation on either side and the slope of the ground. They have several uses as a fire-protection measure. When a forest fire is advancing slowly the break may stop it. At times they afford a way for transportation of fire fighters and equipment. Where the fire is running with such force that it threatens to leap the firebreak, then the break may be used for backfiring, a method of fighting fire with fire by burning the material on the ground so the main blaze will have nothing to feed on. Backfiring must always be done from a safe place such as the cleared line afforded by a firebreak.

Varying Width of the Firebreak

The width of the Ponderosa Way varies from 50 to 200 feet depending on the type of cover and the slope of the ground. On narrow

FIGURE 54.—A firebreak which may be used for the transportation of men and equipment.

ridges it is 50 feet wide, on broader ones 150 feet. On contours and in dangerous places it is 200 feet or more. In the center of the way is a strip about 20 feet wide cleared to mineral soil and graded where necessary to form a road or truck trail so that motor vehicles and tank trucks can travel over it. In places old existing roads are used for this central strip. On steep ground the truck trail is built separately but close to the Ponderosa Way so that as much of the way as possible will be accessible to motor transportation (fig. 54).

Twenty years ago similar firebreaks were built along the western boundaries of the Sierra and Sequoia National Forests in California. They proved their value many times as a defense against fires originating in the low country. The work done by the State labor camps

in the winters of 1931 and 1932 under the direction of the California Division of Forestry revived the idea of protecting the timber belt by a firebreak, and resulted in the Ponderosa Way project.

During the winter of 1933–34 about 24 C. C. C. camps, 10 N. I. R. A. or Public Works camps, and some C. W. A. labor cooperated to complete 75 percent of the Ponderosa Way. Six C. C. C. camps were working on the Ponderosa Way in the summer of 1934 and by the spring of 1935 the project should be complete.

Forest officers and the public believe that this is one of the most important measures yet undertaken for the protection of timber, watersheds, range lands, and recreation areas in the national forests of California.

R. W. Ayers, *Forest Service.*

Predators and Rodents are Factors in the Spread of Disease

That wild animals may be carriers of human diseases, notably bubonic plague, spotted fever, and rabies, has long been recognized by medical authorities. Investigations during the past few years have added other diseases to the list, and now it is becoming more generally appreciated that wild animals play an important role in the health as well as the economic life of man. The Bureau of Biological Survey has done much to learn of the relationship of wild animals to man and to aid in dealing with outbreaks of various diseases by controlling the wild-animal hosts. These diseases have included tularemia, Rocky Mountain spotted fever, endemic typhus fever, rabies, and bubonic plague.

Tularemia has been found to be transmitted, usually by insects, from infected rodents—principally wild rabbits—to man. One of the most recent of the outbreaks, which have been rather common throughout the West, occurred in Meagher County, Mont., late in April and early in May of 1934. Jack rabbits died in great numbers, and dead ground squirrels also were noted. Approximately 200 head of a band of sheep grazing in the area died before the cause was discovered to be tularemia. Investigation by specialists of the Public Health Service, the State board of health, and the Bureau of Biological Survey demonstrated that wood ticks, present in great numbers, were responsible for the transmission of the tularemia from the diseased rodents. The sheep were sheared, dipped, and moved to another range, and the Biological Survey inaugurated a campaign to eliminate the rabbits and ground squirrels, labor and funds being supplied for the purpose by the State emergency relief administration.

Rocky Mountain spotted fever, long one of the dreaded diseases of the West, has been transmitted to humans by wood ticks, with rodents and other wild animals acting as intermediary hosts. Alarm has been felt by health authorities in the Eastern States because of the recent occurrence there of this disease, heretofore considered as a western malady only. Cases have been reported in Pennsylvania and Maryland. A few deaths occurred near the District of Columbia.

Endemic typhus fever, while less important as a cause of death than epidemic typhus, has for many years been a serious disabling disease in the South, and it increased at an alarming rate from 1931 to 1933. The State health departments of Alabama, Georgia, and Texas re-

ported a total of 250 cases in 1931, 772 in 1932, and 1,747 in 1933. As the result of intensive investigations, at the bedside, in the field, and in the laboratory, medical officers of the United States Public Health Service found that this disease has an animal reservoir, chiefly in the common rat, and that under suitable conditions the disease is transmitted from rat to man by certain of the rat fleas. It had been previously shown by specialists of the Bureau of Entomology and Plant Quarantine and of the Baylor University College of Medicine that the tropical rat mite also is capable of transmitting this disease.

Rat-Control Project

With this knowledge and with an allotment of 10,000 workers by the Civil Works Administration the Biological Survey and the Public Health Service carried on an intensive rat-control joint project between December 1933 and March 31, 1934. A total of 747,608 separate premises were treated under the Biological Survey supervision in Texas, Alabama, and Georgia with more than 800,000 pounds of red-squill rat bait in addition to the use of 400,000 traps. It is estimated that not less than 7,500,000 rats were thus destroyed.

The number of typhus-fever cases had increased 300 percent in Alabama during 1932 and 1933, and again in 1934 up to the conclusion of the rat-control campaign. Had the same ratio been maintained there would have been 630 cases reported from the close of the campaign, in March, to July 1. Instead there were only 47 cases, or an indicated decrease of 93 percent. In Georgia and Texas a corresponding decrease also had taken place. The economic saving of produce and property in the 136 counties covered has been estimated to be approximately $8,750,000.

Rabies Among Wild Animals

Rabies is frequently contracted by coyotes and other predators, probably largely from dogs, and may thus be spread among other wild animals and to man. Outbreaks are difficult to control, and it is only through constant vigilance and the work of the expert force of trappers maintained by the Biological Survey that it has been possible to check them. One of the most serious outbreaks in several years occurred in southern Lea County, N. Mex., in February 1933, and within a month it had assumed alarming proportions. In one case, 18 of 22 sheep bitten by coyotes showed symptoms of rabies and were killed by the owner. Several bulls held in a feed lot were attacked by a rabid coyote, but recovered after being given serum treatment. A milk cow at Mesquite, N. Mex., developed the disease, and an entire family that had been using its raw milk was given Pasteur treatment. One trapper bitten by a rabid coyote also received treatment, and another attacked by a coyote killed the animal before it could bite him. Bureau workers, in cooperation with local authorities, instituted a vigorous coyote-trapping and poisoning campaign, and within a few months the epizootic was stamped out. In Nevada about the same time the loss of 23 cattle from rabies in Paradise Valley led to prompt coyote-control measures that stamped out the disease and prevented further serious losses.

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In August 1934 officials of the health and game departments of Maine urged that aid be given in controlling an outbreak of rabies near Farmington. The Biological Survey's expert learned that the trouble was localized in a largely wooded farming section, not over 8 miles in diameter, where 10 foxes with evidence of rabies had been killed since March. One boy, 3 cows, and 4 dogs were known to have been bitten by the foxes, and 2 of the cows had died. A rapid spread of the disease among the numerous large and small wild animals was threatened, but acting on the Bureau's recommendation the State game department immediately employed 10 trappers to remove the possible carriers from the locality. By October 1 these men had taken 162 foxes, 107 raccoons, 510 skunks, 117 porcupines, 9 minks, 67 woodchucks, and numerous squirrels, muskrats, weasels, and vagrant cats. This action brought the situation under control.

Bubonic Plague Among Ground Squirrels

Bubonic plague has long been prevalent among ground squirrels in California, but Federal and State health and agricultural officials have cooperated in controlling these rodents about resorts, camp grounds, and other places frequented by people, and the human cases have been exceptionally few. It has been definitely demonstrated in California that systematic, intensive rodent-control campaigns must be carried on each year if the health and welfare of the State are to be protected, and recent control work made possible by E. C. W. and P. W. A. allotments has thus been of great benefit.

Disease control, in addition to its importance to public health and man's economic interests, is part of wildlife management. Tularemia epizootics, for instance, have virtually wiped out cottontail rabbits over large areas, and muskrats, gray foxes, quail, and grouse have been affected with this disease, which has caused widespread alarm among hunters and trappers and reduced the sale of hunting licenses.

ALBERT M. DAY and J. E. SHILLINGER,
Bureau of Biological Survey.

RICE When Treated for Milling Acquires Desirable Qualities

The most valuable product obtained in the milling of rice is the whole kernels, or head rice. The medium- and short-grain rice varieties are more extensively grown in the United States, owing largely to a higher yield of head rice in milling, than the long- and long-slender-grain varieties. The better long- and long-slender-grain varieties are, however, quoted on the principal clean-rice markets at higher prices than the medium- and short-grain varieties. If the milling quality of the long- and long-slender-grain rices could be improved it should lead to a larger production and consumption of these types in the United States.

The Process

In certain rice-producing countries of the Far East some rough rice is treated prior to milling. It is claimed that the treated rice mills better, and that the milled rice has a more pleasing and distinctive taste, contains more vitamin B, keeps better, and is more nourishing

than untreated rice. The process consists in soaking rough rice in water, then steaming it under pressure. After steaming, the rice is dried and milled. The type or types of rice that are so treated in the Far East and the exact procedure followed are not generally known. It appears that the method of treatment varies more or less in different countries, but the effects of the treatment are essentially the same.

In experiments conducted by the writers on parboiling rough rice the long-grain varieties Fortuna, Rexoro, Edith, and Iola, the medium-grain variety Blue Rose, and the short-grain varieties Colusa and Caloro were used. These, with the exception of Iola, are important commercial varieties in the United States. Rexoro is a long-slender-grain variety of the same general type as the Patna rice from India. The more extensive tests were made with Fortuna and Rexoro.

The rough rice was first soaked in water, drained, and then steamed under pressure. The treated samples were thoroughly air-dried before they were submitted for shelling tests.

Treated and untreated samples of each variety were sent to the Federal-State rice grading office at Crowley, La., for shelling tests. These were made with the Smith shelling device, which indicates the probable yield of head rice that may be obtained from a given lot of rice when milled.

Results of Experiments

For the samples of rough rice soaked for 24 hours at room temperature and steamed for 25 minutes the increase in the indicated yield of head rice ranged from 2.6 percent for Blue Rose to 25.5 percent for Rexoro; for Fortuna the increase was 9.8, for Iola 19.9, and for Edith 23.4 percent. The increases for Colusa and Caloro, steamed 45 minutes, were 19.1 and 28.0 percent, respectively.

In the more extensive experiments, samples of Fortuna and Rexoro were soaked at constant temperatures and steamed for different lengths of time. The increases in the indicated yields of head rice were essentially the same regardless of the length of the soaking period, the temperature of the water in which the rice was soaked, or the length of the steaming period. The color and texture of the treated rice were, however, affected by these factors.

The average increase in indicated yield of head rice for all Fortuna samples soaked at constant temperatures and steamed for different periods was 29.7 percent, and for all Rexoro samples 25.2 percent.

Color of Treated Rice

The treated rice obtained in these experiments when milled varied in color from translucent to amber, whereas untreated milled rice is white or more or less opaque. However, even though the treated milled rice is darker than the untreated, it is nearly as white when boiled.

Cooking Quality

Treated kernels when boiled retained their shape better than did untreated kernels of the same variety. When boiled and sterilized in water or canned soup the treated kernels retained their shape much better than did the untreated kernels of the same variety or those of Patna rice (fig. 55).

A considerable quantity of Patna rice grown in India is imported duty free each year largely for use in commercially canned soups. In

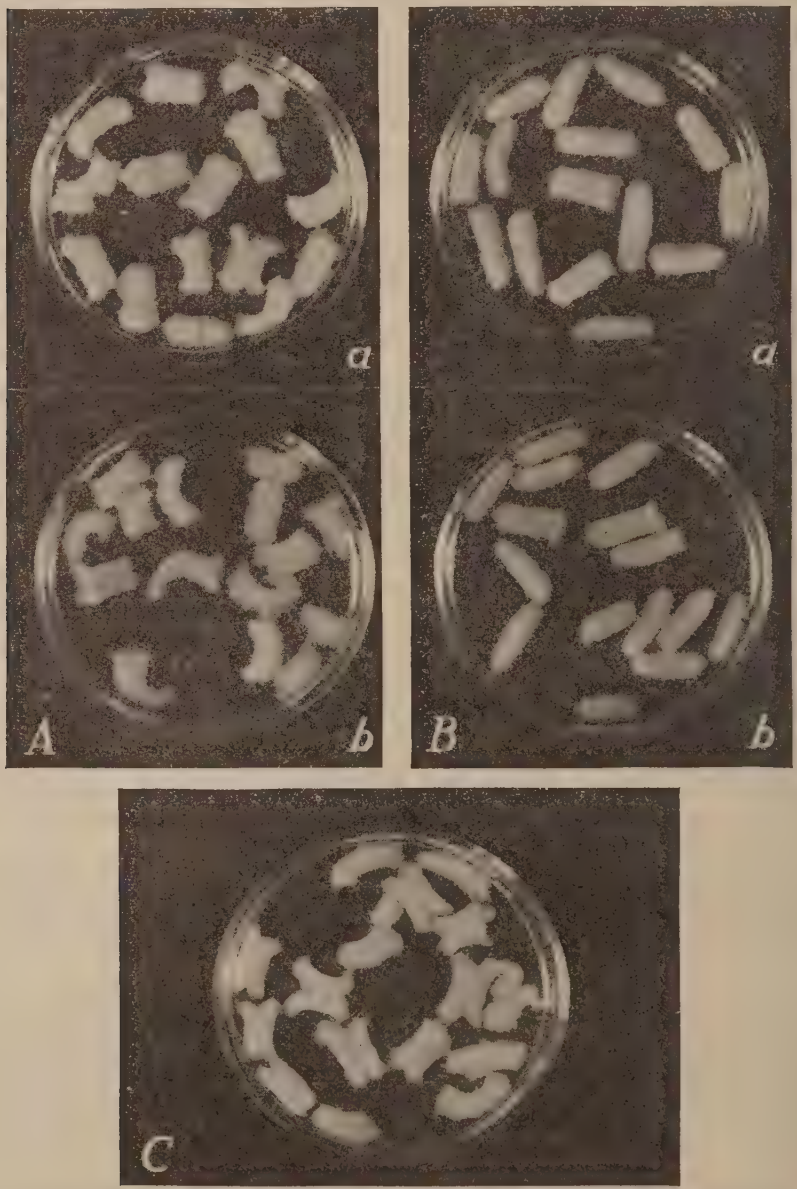

FIGURE 55.—Samples of boiled and sterilized rice: *A*, *a*, Fortuna untreated; *b*, Rexoro untreated. *B*, *a*, Fortuna parboiled; *b*, Rexoro parboiled. *C*, Patna.

the past American-grown varieties that have been compared with Patna in canned soups have not been so satisfactory. However, in comparing parboiled Fortuna and Rexoro rices with imported Patna,

the former appear to have all the desirable characteristics of the latter when boiled and appear even more desirable for use in canned soups.

The information obtained shows that treated rice has desirable characteristics that are at present largely unknown to the rice trade of the United States.

JENKIN W. JONES and JOHN W. TAYLOR,
Bureau of Plant Industry.

RIVER Gage Work Pushed to Improve Flood Forecasting

In September 1933 $150,000 of emergency funds was allotted to the Weather Bureau to repair and improve its river gages. Since that time the Bureau has been engaged, in cooperation with other governmental agencies, in standardizing and perfecting the gages used in river-stage and flood forecasting, and in installing gages to determine the relation of stream flow to precipitation.

The Weather Bureau has always done its river-gaging work under a handicap. Funds had never before been available for the construction at one time of more than a few gages of a substantial and modern type. A large part of the money that could be allotted for gages had to be used in maintenance, because every flood partially wrecked a comparatively large number of the structures. Of all the gages then in use, only four gave a continuous record of river stages.

The emergency allotment is, therefore, not only helpful in giving employment in several hundred widely scattered small towns, but it is furnishing to the Weather Bureau a network of river gages that will be of lasting benefit to the country.

Progress of the Work

On June 30, 1934, there had been erected 76 staff gages, 9 of the chain and weight type, 97 of the wire-weight, and 47 continuous recorders, a total of 229. The work was finished by December 31, and all of the gages maintained by the Weather Bureau either were replaced or were thoroughly inspected and found not in need of repair.

In addition to the 437 gages that are owned by the Weather Bureau there are 272 from which reports are furnished to the Bureau by other agencies, principally the Engineer Corps of the Army. This gives a network of 709 gage reports available for river-stage and flood forecasts. However, only 482 of the reports are made daily; 129 are furnished only during the months that may be considered to embrace the flood season, and 98 are received in times of threatened or actual flood.

The accuracy and timeliness of the river forecasts of the Bureau have, for a long time, been considered quite satisfactory by the general public. But the officials of the Bureau have always realized that the system under which the forecasts are made has an inherent disadvantage in that it has never been expressed in standardized formulas. Each forecaster has a set of rules for the rivers in his district, but these rules must be applied in individual cases through the experience of the forecaster. It is impossible for a forecaster to put a large part of his knowledge on paper and, when he is no longer available for this work, his successor must begin immediately to make an intensive study of the rivers in his district, and the effect on the rivers of rains

of varying intensity and distribution. He must also become familiar with the relation of run-off to precipitation as it may be modified by the season of the year. The condition of the soil and numerous other things must be given consideration. Even an intensive study does not thoroughly qualify a forecaster, but actual experience must be had before he feels sure of himself.

Discharge observations or rating curves have been used to a very minor extent in Weather Bureau work. It has not been possible to employ them in any large way because they were not available. However, since 1922, and particularly since 1927, much stress has been placed on flood protection, and, in the last few years, inland navigation and power development have progressed steadily. Hence information in regard to the quantitative flow of streams is increasing more rapidly than ever before, and a further important increase will come with the continuously recording gages put in with Public Works funds.

Stream-Flow Measurements on Important Rivers

The Weather Bureau makes no stream-flow measurements. However, through the cooperation of the Geological Survey, rating curves will be available for strategic points on the important rivers of the country, where recording gages are situated, and the officials of the Bureau will begin a study of the application of rating curves to river-stage and flood forecasting. It is realized that these curves can be no more than an important aid; that current meteorological information will always be indispensable in river forecasting, and that if, in rehabilitating and standardizing the network of river-gage stations, the meteorological stations are neglected, no satisfactory measure of success can be attained. But it is thought the study and application of the curves will remove a reasonable amount of the personal element that now surrounds forecasting, will make it possible to refine forecasts somewhat more than at present, especially on the large rivers, and will enable a forecaster to leave for his successor formulas that are based on sound and well-understood principles.

River-stage and flood forecasting is the primary purpose of the river-gage service, but the necessity for adding another feature, the determination of the relation between stream flow and precipitation, has been growing and has increased rapidly in the last year or so. A knowledge of this relation is necessary in making plans for power dams, irrigation projects, flood prevention and control, and farm and city water supplies. However, reliable statistics regarding the relation are too scant to be of great value, and the dry weather that has prevailed over most of the country in the last few years has shown engineers in a most positive way that sound plans for the water conservation, so necessary to agriculture and the general public, cannot be made without a definite knowledge of the volume of water streams may be expected to deliver in disastrously long periods of insufficient rain.

Run-Off Data Useful in Economic Planning

A knowledge of rainfall is fundamental, but this knowledge, to be of full advantage, must be extended to show what becomes of the rain after it is received by the ground, and a definite determination of the relation of stream run-off to precipitation throughout the country would prove inconceivably valuable in planning the economic life of

the Nation. The climatological service of the Bureau collects precipitation data for the entire United States, and these data, in conjunction with the stream-flow rating curves prepared by the Geological Survey, will make possible the determination of this highly important relation between stream flow and precipitation.

M. W. Hayes, *Weather Bureau.*

SCREW-WORM Invasion of South Necessitates Modified Farm Practices

The screw-worm problem in this country has been intensified by the spread of this pest into the Southern States during the summer of 1933. This insect is a native of North America, and it occurs in destructive numbers every year in the Southwestern States, where it is one of the most important problems of livestock raisers. All kinds of livestock, wild animals, and even man are attacked by this pest.

The screw-worm flies are bluish green with three black stripes on the back and reddish-yellow face. There are two species of these flies. One lays its eggs in fresh wounds on any part of the body, while the other breeds in carcasses of animals and in old wounds on livestock. The larvae, or worms, of both species soon hatch and penetrate the tissues, in which they complete their growth in about 6 days. Then they drop to the ground and there enter the pupal or resting stage, from which the adult fly emerges a few days later.

The invasion of the Southeastern States produced an acute phase of this problem, because the farmers in that region were unfamiliar with the insect and its depredations, and many of them were financially unable to deal adequately with the pest. Under these circumstances it is not surprising that a condition approaching hysteria resulted in many localities.

The pest appeared in northern Florida and southern Georgia in 1933 and caused considerable losses during the fall. In May 1934 infestations of all classes of livestock began to appear in this and adjacent territory. The ravages of the pest extended rapidly, and as the season advanced most of the State of Florida was involved and cases occurred in about 120 counties in Georgia and throughout the southern half of Alabama, Mississippi, and Louisiana. A good many cases also occurred in southeastern South Carolina, although the infestation there was not general. The belt of heavy infestation extended westward along the coastal area into southeastern Texas. A considerable number of animals in northwestern Iowa and some in central and southern Indiana were also infested with screw worms, but these appeared to be isolated areas of infestation. The pest is rarely found so far north.

Total Loss Stupendous

It has not been possible to gather definite information on the number of screw-worm cases or the losses due to this outbreak in the Southeast, but it is evident that the total loss has been stupendous. In many of the coastal counties in Texas, Louisiana, Mississippi, and Alabama, the stockmen report that their loss among sheep has reached 30 to 40 percent of their holdings and that the loss among their hogs has been nearly as high. The infestation among cattle is stated to have attained 15 to 20 percent and that among horses and mules 5

to 8 percent. The percentage of infestation in many counties in Georgia and Florida is equally high. Extensive unfenced areas are pastured by sheep, cattle, and other stock in each of these States, and the losses have invariably been higher where the stock has been run on such open range.

One of the leading predisposing causes of screw-worm infestation in the Gulf States is the attack of the Gulf coast tick. This tick affects all kinds of animals, usually in the external ear, which soon becomes swollen and cracked, forming an ideal place for screw worms to attack. The exudate from the screw-worm-infested wound runs down into the ear and over the face, encouraging the flies to lay eggs upon and the worms to burrow into the more vital parts of the animal. In much of the screw-worm-infested territory, therefore, the control of the Gulf coast tick is an important step in dealing with the screw

FIGURE 56.—Peeling brands attacked by screw worms.

worm. The habits of this tick do not permit its eradication, or even satisfactory control, by dipping, as practiced in the eradication of the cattle tick. The application, with a swab, of pine-tar oil to the inner surface of the ears kills most of the worms and protects the animal from infestation for several days.

Infestation of Young Animals

Another important cause of attack and consequent loss is the birth of young during the season when screw worms are active. During this outbreak many stock owners found that practically every newly born lamb, calf, and pig was attacked. In these young animals the navel or mouth is usually involved, and in the former location the burrowing maggots soon reach vital parts and cause the animal to die. In the Southeastern States branding (fig. 56), castrating, and marking have been carried on heretofore at any time the stock owner's fancy

dictated, and this practice has given rise to innumerable infestations. Large numbers of freshly branded and ear-tagged cattle shipped into the infested area in accordance with the Government's drought-relief program became infested with screw worms, and this led many to believe that the pest was introduced from the West with these cattle. The fact that the insect was prevalent in the Southeastern States in 1933 and in the spring of 1934 before the drought-relief cattle were introduced clearly disproves this.

Many stock raisers in the Southeast have asserted that unless the screw worm is controlled they will be forced to abandon livestock raising. This statement has emanated chiefly from the large owners who have run their herds and flocks on open range. It seems certain that stock raising cannot be carried on profitably in the presence of screw-worm conditions such as those existing in 1934 without decided changes in methods of management.

Ranges must be fenced in order to enable the stock owner to check up closely on his stock and treat injured or screw-worm-infested animals promptly and regularly. The extreme importance of prompt treatment is emphasized by the recent discovery that there are two distinct species of screw-worm flies, one of which apparently breeds only in the tissues of living animals. Thus, if infested animals are not treated, this most destructive form may multiply until a pasture is heavily stocked with them.

The heavy infestation of newly dropped young in the summer and fall makes necessary the control of breeding time so as to avoid births during the most active fly season. This, in turn, demands fences to control the breeding stock and often the production of supplemental feeds to keep the dams in proper condition for dropping their young early in the spring.

The fencing of pastures invariably leads to the breeding of better animals, and the possession of more valuable animals demands better care of them; thus the whole industry is ultimately raised to a higher level.

The screw worm compels stockmen to brand, castrate, and mark their animals when flies are not abundant. A uniform breeding season aids in this, and fences are important.

Control Work Undertaken

To meet the urgent needs of the acute screw-worm situation that developed in the Southeast subsequent to the making up of the budget, and to permit the Department to carry on a control campaign, arrangements were made, with the approval of the Bureau of the Budget, for the transfer of $5,000 from an appropriation made to the Bureau of Entomology and Plant Quarantine for another purpose. This fund was used for the expenses of Department men in determining the status of the problem in the South and in directing the control work. To complete the organization and to provide some of the materials for treating infested animals, the Emergency Relief Administration in each of the States of Florida, Georgia, and Mississippi provided $7,500. An organization consisting of regional and county control directors was quickly built up in each of these States; and, as the need of familiarizing farmers with the proper methods of treating infested animals and protecting others from attack was apparent, an intensive educational campaign was undertaken in cooperation with

the various interested Federal, State, and local agencies. Many meetings were held, in some of which demonstrations were conducted to show how to apply benzol to kill the worms and pine-tar oil to repel the flies, how to burn carcasses (fig. 57), to build treating chutes, etc. To acquaint stock owners with the proper materials for treating screw-worm cases, small quantities of benzol and pine-tar oil were given to those having infested herds, especially those unable to buy these materials.

FIGURE 57.—Demonstrating carcass burning during screw-worm-control campaign in Mississippi.

In this work an effort was made, not only to enable the farmers to meet the present problem effectually, but to teach them how to prevent the recurrence of such heavy losses as were experienced during this outbreak, and to improve farm practices so that livestock raising may be more profitable in the future.

F. C. BISHOPP, *Bureau of Entomology and Plant Quarantine.*

SHEEP Improvement in U. S. Should Result from Recent Importations

During the last decade the Bureau of Animal Industry has made a special effort to supply the State agricultural colleges and experiment stations with rams of the highest quality to be used by them in the production of superior breeding animals. These in turn are passed on to farmers for the production of lambs and wool. Such animals have gone out from this Federal Bureau to 31 State institutions and in most cases have left a decided impression upon the sheep industry.

In order that this service may be made as useful as possible and that the quality of the animals may be the most meritorious, the Bureau recently acquired for its breeding operations at Sheep Acres, Beltsville, Md., some of the finest animals of the Shropshire, Hampshire, and Southdown breeds available from the most successful sheep-breeding establishments in England and Scotland. A consignment of merit which arrived in November 1933, consisted of 20 ewes and 4 rams especially selected at the dispersal sale of the famous Corston flock of Shropshires owned by the late T. A. Buttar of Coupar Angus, Scotland (figs. 58 and 59).

A second consignment of the most select animals available arrived at the Government farm in September 1934. In this last importation were 6 yearling ewes (fig. 60) and 2 stud rams of the Hampshire breed. One of these rams, bred by Maj. V. S. Bland of Aldbourne, England, was selected for his outstanding individuality (fig. 61). He was a show ram that was undefeated during the entire show season. The

other ram was a show ram as a lamb, bred in the famous Pendley flock of Tring, England. He was used extensively as a sire the following fall and has proved his ability to sire lambs of exceptional merit. Four of the ewes were outstanding show animals, bred by E. Clifton Brown of Burnham, England, and two were select breeding ewes from the famous Flower flock at Chilmark, England. This consignment of Hampshires gives the Bureau as good a representation of the breed as was possible to find in England. Their offspring should prove to be of superior merit and should justify their importation by the increased efficiency of their progeny in the flock.

FIGURE 58.—Shropshire stud ram, Corston no. 84, yearling ram in service in the Bureau of Animal Industry's flock, Beltsville, Md. The ram was obtained at the dispersal sale of T. A. Buttar, of Coupar Angus, Scotland, in 1933.

FIGURE 59.—Shropshire yearling and 2-year-old ewes obtained at the T. A. Buttar dispersal sale and imported to add to the Bureau's breeding flock at Beltsville, Md.

The Southdown selection consisted of the champion pen of yearling ewes at the English Royal Show, 3 other show ewes, and a show ram (fig. 62) of exceptional merit from the flock of J. Pierpont Morgan.

FIGURE 60.—Three of the Hampshire yearling show ewes which won first prize wherever shown in England, including the English Royal Show at Ipswich. These ewes were part of the importation in 1934 and are now a part of the breeding flock at Beltsville, Md.

In addition to these, 5 yearling breeding ewes and an exceptional stud ram selected from the famous Luton Hoo flock were obtained. This outstanding ram was champion at all the principal shows during the season, including the Royal at Ipswich. This consignment is unquestionably one of the best of the breed ever brought into the country and the superior merit of the animals should be manifest through their progeny for many years to come in Southdown flocks of the United States.

FIGURE 61.—Hampshire yearling ram which won first prize at all principal English shows, including the Royal at Ipswich in 1934. Obtained for a stud ram in the Government flock at Beltsville, Md.

The other animals in this importation were two Shropshire rams, one a show ram that was bred in the flock of E. Craig Tanner, Eyton-on-Severn, England, which was first in his class at the Royal, and the other a show yearling bred by Maj. J. N. Ritchie of Tern, England. These rams should combine well in blood with the Buttar stock, imported the preceding year.

Although these English-bred sheep are not considered superior in all cases to those produced in the United States, the admixture of the best available imported blood to the best strains now being produced in this country should hasten flock improvement materially. Complete performance records are being kept on these imported sheep and only those that prove superior in their production of wool and lambs will be retained for use in the Bureau's experimental flocks.

FIGURE 62.—Southdown ram, Aldenham 839. An outstanding show ram and sire. Obtained for use at Beltsville, Md.

C. G. POTTS, *Bureau of Animal Industry.*

SIRUP Buying from Farms By Relief Agency Shows Need for Better Quality

The farm-made sirup industry involves a processing of raw material on the farm. Instead of selling sugarcane and sorgo as such, these crops are made into sirup either on the farms of the growers or at farm custom mills on a share basis. At least 60 percent of the production is marketed as an important source of cash for thousands of small farms, located principally in the South. By processing sugarcane and sorgo and marketing them in the form of sirup, the farmer has an opportunity for obtaining a considerable "step-up" in value.

Recent purchases of sorgo and sugarcane sirups by the Federal Surplus Relief Corporation direct from farmers through State extension marketing services in several producing States have resulted not only in making the relief dollar do double duty, but have also thrown an economic searchlight upon the problems of sirup producers in handling this subsistence and cash crop which is of importance on many small farms. The purchase on behalf of the Federal Emergency Relief Administration of sirup direct from farmers on a scale of hundreds of thousands of gallons has emphasized the variation in quality which is a serious obstacle to the more profitable marketing of this crop.

On first thought this difficulty confronting the farm-scale sirup producer may appear to be a simple marketing problem, but further consideration shows that the problem is more complex than one of simply establishing the usual marketing program as applied to fruits and vegetables. The establishment of a grading system and marketing program alone will not solve the problem, since too large a percentage of farm-made sirup is not merchantable because of various defects such as sugaring, sediment, turbidity, dark color, and strong flavor. It is necessary to improve production at the source in order that the percentage of off-grade sirup may be reduced to a point at which a grading and marketing program will be effective.

Chemical and Technological Research

Basic chemical and technological research by the Bureau of Chemistry and Soils is resulting in the solution of various difficulties which have been the cause of defects in quality and which heretofore have stood in the way of a sufficient degree of uniformity in quality. Effective methods have been developed for preventing sugaring (crystallization of sucrose) in both sugarcane and sorgo sirups and for obtaining better control of color and flavor. Crystallization of sucrose (cane sugar) can be prevented by transforming a portion of the sucrose into invert sugar. This is accomplished by adding to the sugarcane juice or semisirup a very small proportion of invertase, which is an enzyme that has the specific property of inverting sucrose. In sugarcane sirup of strong flavor and dark color the flavor and color can be reduced by the use of decolorizing carbon. A method for using decolorizing carbon on a farm scale has been devised.

A practical farm-scale method of using the malt-extract method for preventing gelatinization of starch in sorgo sirup has been devised. The malt extract, which is added to either the sorgo juice or to the semisirup, transforms the starch into sugar and dextrin. This treatment not only prevents slow boiling and subsequent jellying of the sirup, but also yields a sirup which is much clearer in appearance than that ordinarily obtained. The method is simple and the cost is small. More basic research along this line is needed in order to provide a sufficient solution of the problem at the source as a prerequisite to grading and marketing.

Coordinated Program Desirable

For the purpose of bringing about more profitable marketing of farm-made sirups in a manner comparable with the marketing of fruits and vegetables, it is necessary to have (1) correlated agronomic and basic chemical technological research for the development of improved production methods which will result in sirup of better and more uniform quality, (2) timely and rapid dissemination of research information through the extension services of the various sirup-producing States so that research results can be applied without delay, and (3) cooperation of farm marketing agencies for operation of grading and packing plants so as to effect an orderly marketing of farm-made sirups.

One State marketing agency, which purchased over 300,000 gallons of sugarcane and sorgo sirups during the past year for the Federal Surplus Relief Corporation, is now taking steps toward the installation of grading and packing plants for the purpose of placing farm-made sirup on an equal marketing basis with vegetables and other farm crops. An important influence for extension of the commercial market for farm-made sirups is the wide distribution of sirups purchased by the Federal Surplus Relief Corporation for relief purposes. These sirups have been distributed in some areas in which heretofore very little farm-made sirup has been consumed. Favorable reports regarding the reception accorded these sirups have been received and this distribution may have an important influence in widening the commercial market in later years. Sorgo and sugarcane sirups have important nutritional and dietetic properties which are valuable for supplementing other foods in the diet.

E. K. Ventré, *Bureau of Chemistry and Soils.*

SOIL-Erosion Studies Develop Information of High Practical Value

It has become a matter of common knowledge that the uncontrolled action of wind and water has done serious damage to great areas of some of the best agricultural lands of the United States. The installation of a series of erosion-control experiment stations was begun late in 1929 to study in a systematic way the character and control of the natural forces at work under a wide variety of soil and climatic conditions. So far 10 stations have been set up in various parts of the country by the Department. They have been established in cooperation with State experiment stations and other local agencies.

At some of the stations much leading information already has become available on several phases of the subject which should facilitate the task of planning a land-use program for denuded and semidenuded acres. This information is proving useful as a basis for establishing general control measures against current and future losses of soil and water.

The development of this phase of the work has been particularly timely in connection with the national program of conservation. Many influences have been brought to bear upon this subject, and more control work has been started during the past year than ever before. Programs of work have been intensively fostered in this field not only by the regular Extension Service of the Department and by the E. C. W. camps of the Civilian Conservation Corps, under the direction of the Department of Agriculture, but also by the recently created Soil Conservation Service in the Department of Agriculture. Intensive efforts are being made by the latter to develop impressive control demonstrations, based upon the data furnished by the investigational work of this Department's erosion experiment stations. This work is under way on more than 20 watersheds, most of them 100,000 to 200,000 acres in size, located in widely different sections where erosion is bad.

Wind Erosion

The terrific dust storms that prevailed throughout the Middle West during the past year have developed public concern regarding the erosion problem. The more violent of these storms traveled eastward to the Atlantic seaboard and passed out to sea carrying thousands of tons of choice soil materials swirling in mid-air to heights of 2 or 3 miles. In many ways such disturbances are comparable to the "black storms" of Russia. Following a violent storm of this type in the Ukraine on April 25–26, 1928, 700 widely distributed measurements showed that a total of 15,400,000,000 tons of soil had been swept up into the air and deposited in other parts of the country as well as in Poland and Rumania.

This type of soil denudation, just as in the case of sheet and gully erosion by water, is the usual consequence of injudicious land use in these semiarid sections of the country. The illustrations in figure 63 show in a general way the extraordinary conditions that prevail during such storms and those that follow. Control of soil losses by wind may be promoted by the use of judiciously spaced windbreaks and protective covers of close-growing vegetation, as well as by the adoption of proper methods of cultivation, especially during critical seasons of the year.

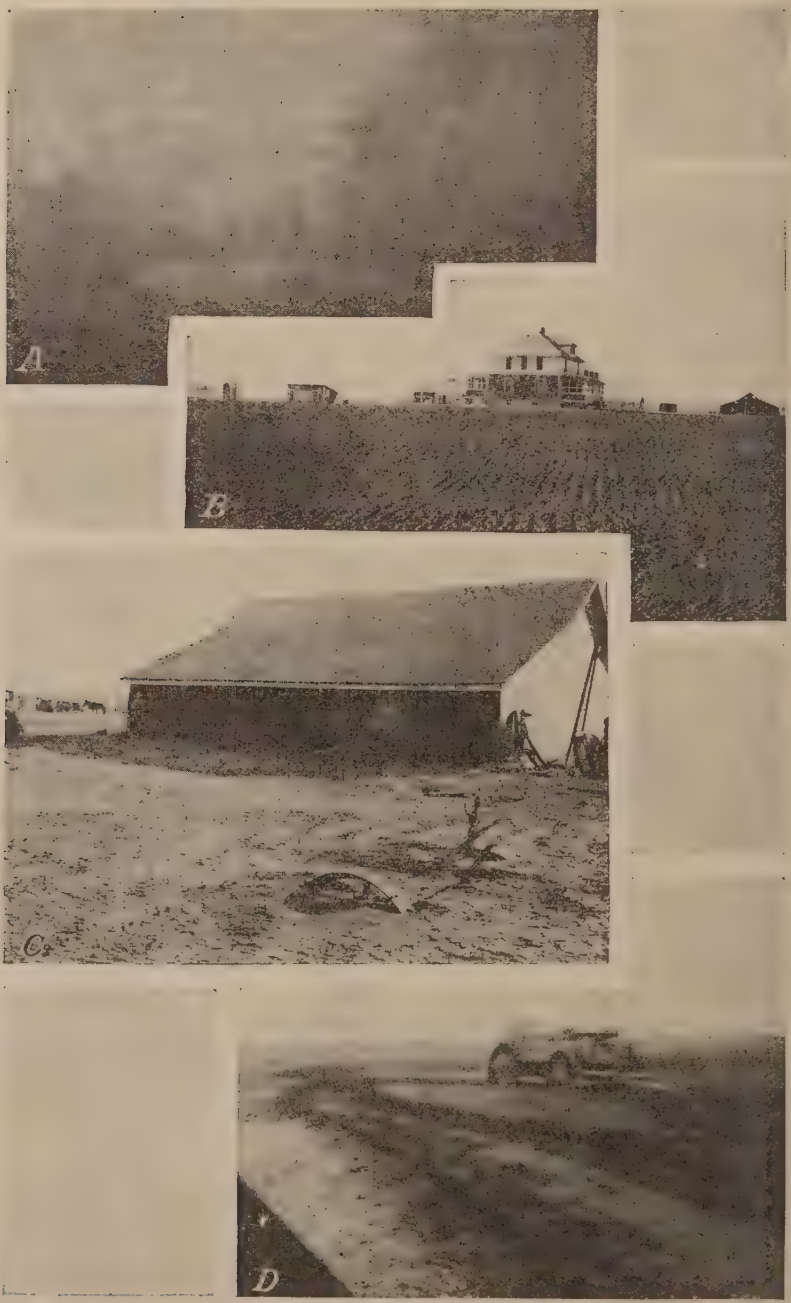

FIGURE 63.—Wind erosion in the Midwest (Dixon Valley, S. Dak.) in the spring of 1934: *A*, A modern farm house and buildings engulfed in a dust storm, the outline of the house alone being visible in the distance; *B*, after the storm, the same farm home shown in *A*, taken from the same position; *C*, machinery buried in the farm yard by soil which drifted in from the fields during the storm; *D*, road conditions following a dust storm and rain when the former drifted the highway over with fine soil to a depth ranging from 12 to 18 inches and the latter transformed it into a deep bed of soft mud.

Investigational Work on Erosion Control

The aggregate area served by the present series of erosion stations is approximately 225,000,000 acres. Each station already has contributed constructive information for direct application in the field and for extension activities. This information has dealt with the relative rates of soil and water losses from various soils under definite conditions of slope, with climatic relations, and with surface exposure and other treatments, and has included suggestions for erosion control under working conditions.

Rather definite physical relations exist between established soil types and erosional behavior. Type relations and comparisons are being studied especially from the standpoint of infiltration rates. Important results are accumulating which are of basic value in an accurate evaluation and study of soil erosion. A definite knowledge of the sum of the basin capacity, in inches of rainfall, of the surface conformation of a soil developed by a given type of cultivation or treatment, and of the rate of infiltration of water into that soil under those conditions, is a factor of considerable importance in run-off and erosion control. The difference between this value and the total rainfall must represent the amount that will run off the surface, be lost to plant growth, and cause erosion unless the soil is protected. The effect of the incorporation of organic matter, and of such cultural practices as careful contouring or the use of the hole-digging machine on the infiltration rate, makes these cultural practices of primary importance in erosion control. They may also have a secondary effect through the direct improvement which they exercise over plant growth.

Vegetation Plays Important Role

The dominant role of vegetation, whether it be grass, close-growing cover crops, shrub, or forest cover, as a controlling factor in soil and watery losses, has come to stand out in an exceedingly important way. Highly effective control measures involving vegetation are much in use where gully control is a major aim. The effectiveness of vegetation in protecting against gully encroachments is well shown in figures 64 and 65 taken at the Bethany (Mo.) station where a considerable amount of work along this line is in progress. The role of vegetation in holding the soil in

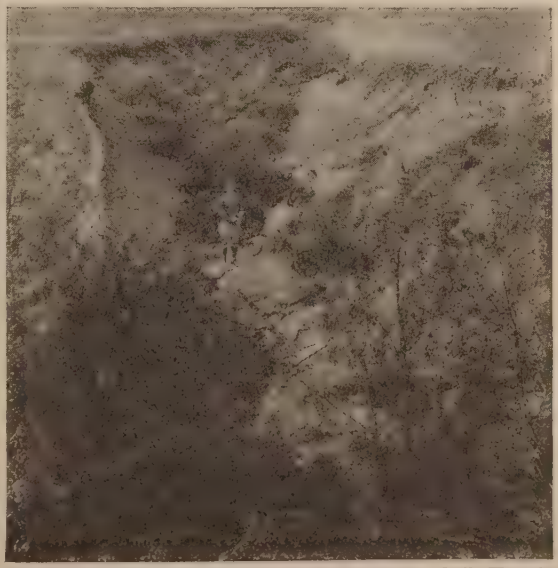

FIGURE 64.—Gully control with the use of vegetation. Gully H at the Bethany Soil Erosion Experiment Station on Shelby silt loam prior to setting up control work. This is typical of gully formation in this soil.

place is, of course, not all new information. Were it not for this natural force, which has been continually at work throughout the ages, soils never would have developed as we now find them under virgin conditions, even on comparatively slight slopes. Its effectiveness is well shown by the simple comparisons of table 11 which represents soil and water losses from control plots on a wide variety of soils in widely different sections of the country under definite conditions of slope and surface exposure. According to the results presented as soil and water losses it is apparent that close-growing vegetation such as grass, alfalfa, etc., slows down water losses, and decreases soil losses hundreds and even thousands of times when compared with uncontrolled plots.

FIGURE 65.—Gully control with the use of vegetation. Gully H, as shown in figure 64, taken 3 years after setting wire checks, plowing down sides, seeding, and setting trees.

TABLE 11.—*Comparison of soil and water losses by surface run-off from selected treatments of the control-plot series at several of the soil-erosion experiment stations which show the striking degree of control that is possible through the proper use of vegetation*

Area, soil type, and rainfall (inches)	Plot treatment [1]	Soil loss per acre	Loss of rainfall
		Tons	*Percent*
Upper Mississippi Valley, La Crosse, Wis., Clinton silt loam, 16 percent slope (1933 only). 29.11.	Bare soil, uncultivated	51.5	15.9
	Continuous corn	59.9	19.2
	Continuous barley	12.0	17.8
	Continuous bluegrass	.003	2.9
Missouri-Iowa, Bethany, Mo., Shelby silt loam, slope 8 percent (average 3 years, 1931–33). Average annual rainfall, 33.53.	Bare soil, uncultivated	112.48	25.98
	Continuous corn	61.16	2.38
	Continuous bluegrass and timothy	.36	7.72
	Continuous alfalfa	.22	3.40
Red Plains, Guthrie, Okla., Vernon fine sandy loam, slope 7.7 percent (average 4 years, 1930–33). Average annual rainfall, 32.92.	Bare soil, uncultivated	14.59	26.04
	Continuous cotton	28.05	14.18
	Bermuda grass	.040	1.51
Texas-Arkansas-Lousiana, sandy lands region, Tyler, Tex., Kirvin fine sandy loam, slope 8.75 percent (average 3 years, 1931–33). Average annual rainfall, 42.31.	Bare soil, uncultivated	12.20	18.20
	Continuous cotton	19.06	18.00
	Bermuda grass	.20	1.50
Central piedmont, Statesville, N. C., Cecil sandy clay loam, slope 10 percent (average 3 years, 1931–33). Average annual rainfall, 42.9.	Bare soil, uncultivated	65.3	32.0
	Continuous cotton	14.0	9.7
	Continuous grass	.8	5.2

[1] All plots 72.6 feet long and 6 feet wide, or one one-hundredth of an acre in size.

The Importance of Proper Crop Rotations

One of the most important fields for study in the relation of plants or plant covers to erosion control, especially where cultivated crops are necessarily involved, is to be found in the adjustment of crop rotations for best results. Thus cotton planted continuously on a Vernon fine sandy loam is much more conducive to erosion and water losses than when used in a rotation of cotton, wheat, and sweetclover. Under the former condition it developed an average annual soil loss of 28.0 tons per acre, and an average annual water loss of 14.2 percent of the rainfall over a 4-year period, against a loss of 16.4 tons of soil and 11.7 percent of the rainfall where the crop appeared in the rotation referred to but under otherwise identical conditions. When the average for the entire rotation is considered the loss of soil is reduced to 6.3 tons per acre and that of rainfall to 11.7 percent. The unusual effect of the association of the other crops with cotton under the conditions of the rotation referred to in reducing these losses is readily apparent. The same relation has been found to hold for corn and other cultivated crops in this and other areas.

Strip Cropping

Under natural conditions of cultivation, strip cropping, or the alternation of close-growing crops such as alfalfa or sorghum with culti-

FIGURE 66.—Strip cropping on Shelby silt loam (slope 4 to 5 percent), field I, at the Bethany Soil Erosion Experiment Station, looking south across one of the sodded draws or natural drainageways. The strips are each 115 feet wide and are used for a 3-year rotation of corn, oats, and clover laid out on a modified contour with permanent meadow below and an irregular area of alfalfa above.

vated crops such as corn or cotton, in strips of definite width, depending on the degree of slope and other factors, shows highly interesting possibilities for erosion control. The procedure of course falls within the limitations of availability of desirable crops for a given soil, locality and type of farming as well as the seasonal exposure involved during the periods of seeding. The degree and uniformity of slope as well as

the systematic protection of all depressions or natural waterways are also important factors requiring careful attention. Where the practice is to be adapted to an impervious soil, the strips should be placed somewhat off the contour or slightly graded down the slope toward the protected drainageways, in order to develop surface flow in that direction rather than down the slope.

On the impervious Shelby silt loam at the Bethany station in Missouri, strip cropping on the modified contour, with well-protected drainageways, is proving a very practical and efficient method of reducing erosion on slopes of moderate grade where severe gullying has not produced a rough topography. The arrangement of these strips in relation to the protected drainageways for a rotation involving corn,

FIGURE 67.—Strip cropping on Shelby silt loam (slope 4 to 5 percent) as shown in figure 66, but looking up the sodded draw or drainageway that functions not only in carrying water down the slope from above the established strips, but also from the strips themselves as it is delivered from them to such a natural channel-way as a result of the slight grade down the slope on which they are laid out.

oats, and clover at the Bethany station is well shown in figures 66 and 67. Generally similar results have been obtained at the Temple and Tyler (Tex.), Clarinda (Iowa), and Guthrie (Okla.) stations.

Terracing and Other Contour Operations

The principal weakness in any attempt to use vegetation alone as a complete control for erosion, expecially on steeper slopes, lies in the fact that under practically all farm conditions where erosion is a serious factor, such areas must be used for cultivated crops at some point in the rotation. The supporting effect of terraces thus becomes important. While terracing is not regarded as a complete control for sheet washing under conditions of exposed, cultivated surfaces on slopes conducive to the erosion of a given soil, the use of broad contoured channelways of this type across the face of erosive, sloping fields tends very effectively to reduce sheet erosion and to prevent the development of the more severe type of gullying.

Combination Methods Necessary

Just as control of soil and water losses by vegetation requires the assistance of terracing or other forms of contour operations under certain conditions of soil, crop, and slope, so terracing requires the assistance of the plant as completely as this protection can be afforded. Erosion control increases with the extent that vegetation is used. This is due to the fact that cultivated slopes, even on terraced areas, are exposed to some sheet erosion. This protection is afforded by the use of more cover crops and the more frequent use of thick-growing crops in the crop rotations and by effecting certain combinations of strip cropping in which the strips are definitely arranged in relation to the terrace positions. Studies are under way at some of the stations involving the combination of strip cropping with a lower type of terrace than is ordinarily constructed especially under moderate conditions of rainfall. Combinations of mechanical means with vegetation used in a proper manner have interesting possibilities.

R. V. Allison, *Bureau of Chemistry and Soils.*

Soil Survey Provides Data for Classifying Land; Planning Uses

Various local and State governments, faced with problems of tax delinquency resulting from the inability of farmers to earn an income from soils that are too unproductive or remote from markets, are demanding some program for land use which will enable the citizens of the distressed communities and counties to support their schools and roads.

In one form or another such programs are at present under way in New York, Wisconsin, North Dakota, Michigan, and Washington. The various measures put into effect by these governments for planning land use and for the conservation of resources immediately call for an accurate inventory of the relative productive values of the different soils of areas concerned. Obviously a classification of the land is the first essential step in attempting to meet this problem. The growth of plants, whether for crops, grazing, or forestry, is so intimately bound up with the nature of the soil type that the physical quality of the land ultimately determines, more than any other factor, the possibility for success of any agricultural enterprise. In the case of the cropping-use group especially, the units of operation—farms and ranches—are small and individual. Physical information about the land must be sufficiently detailed in its geographic expression on maps to indicate clearly the nature of the land on each unit. As a further requirement it was necessary to have an approximate idea of the total extent of the various soil types, capable of use for the various types of enterprise.

Fortunately about half the nonmountainous part of the United States had been covered by the soil survey and the data were available for the necessary land classification. A part is covered by reconnaissance soil surveys made on a scale of about 2 to 6 miles to the inch and showing the general distribution of the principal soil types. The greater portion is covered by detailed surveys on a scale of 1 mile to the inch and showing accurately the distribution of the soil types and other physical features of the land in close detail. Detailed reconnaissance surveys cover projects having nonmountainous areas requiring

detailed work and mountainous areas in which only general features need be shown.

The soil map is accompanied by a report describing the various soil types and explaining their use. The general conditions of climate, vegetation, physiography, geology, and drainage are described as well as the detailed condition for each type. Agricultural practices are discussed, giving statistics as to crops grown, yields obtained, market facilities, and similar material having a bearing upon the use of the land.

Land Inventory Compiled

Each soil type has quite definite, determinable possibilities for the growth of crops, grasses, or forests. Through the long accumulation of data and experience by research workers and farmers on soil types, much definite information is now available. The Division of Soil Survey has prepared definite ratings of natural productivity for each soil type for the various crops grown in the majority of the areas. These ratings were made in cooperation with the State experiment stations and represent the result of accumulated experience on each soil type. These data have been compiled for the United States as a whole and may be summarized in 5 classes from 1, the best, to 5, the poorest, according to natural productivity as shown in table 12.

TABLE 12.—*Area of the United States covered by the soil survey and percentage of the land surveyed that falls in each class*

Class	Area surveyed	Percentage	Class	Area surveyed	Percentage
	Acres			*Acres*	
1	100, 752, 633	5	5	881, 931, 310	47
2	210, 707, 665	11			
3	346, 172, 420	18	Total	1, 901, 589, 667	100
4	362, 025, 639	19			

Method of Land Classification for Tax Assessment

The Division of Soil Survey has completed a cooperative project with the North Dakota Agricultural Experiment Station for a detailed land classification in McKenzie County, N. Dak. Billings County of the same State will be completed early in 1935, and Morton County somewhat later. Other counties are being taken up as rapidly as possible.

This work was organized at the request of the local officials in the counties for the special purpose of making assessments for taxes on land according to its producing capacity. Although such a classification of lands on a uniform basis for appraisal rests primarily on the nature of the soil, other factors necessarily are considered. The degree of slope and of stoniness are carefully noted, as well as the nature of the grass cover, forest growth in the stream valleys, presence of alkali, accessibility to markets, and similar factors which influence the production of farms and ranches.

The procedure developed for this work consists of four principal steps:

(1) The soils and other physical features of the land are mapped in detail on a scale of 2 inches equals 1 mile, in classes defined according to their practical significance.

(2) The natural productivity of each important combination of soil, slope, and stoniness, is determined by studies of the actual use of these lands, both for grazing and for crop production. Thus each land type is given a numerical rating in terms of its percentage of the ideal, or best-producing land of the county, both as cropping land and as grazing land.

(3) The use group (cropping or grazing) of each tract of land is determined largely on the basis of the amount of the various land types and on accessibility. Land naturally adapted to crops is rated as cropping land unless the area is too small or too far distant from other cropping land for economic farming. In this area, land unsuited for cropping is rated according to its productive capacity.

(4) According to the relative amounts and productive capacity of each of the land types and the social unit of land (farm, ranch, or other holding) each tract of land is given a composite rating in terms of ideal land, as 100 percent. These values are reduced conformably to a uniform schedule according to their accessibility to markets, as determined by the distance and the type of road. Those grazing lands lacking natural sources of water take a further reduction. As the lands in North Dakota were surveyed and sectionalized by the Government Land Office, the land is listed on the tax roll by forties according to the survey. The results of the land classification are also given on the basis of the 40-acre unit. Thus each forty is given a rating between 0 and 100 percent according to its productive capacity, in an economic sense in relation to the best, or ideal land of the county.

With such a classification in hand, it only remains for the local officials to determine the assessed valuation of ideal land, and all other land takes its appraisal according to its productive capacity. County officials have encouraged the development of this procedure with the thought of obtaining a more equitable and practical distribution of local taxes on farm land. At the same time the data obtained in the course of the classification are those required for any planning of land use. These same appraisal values are being used in the acquisition of lands for grazing districts and public parks.

Land Surveys in Tennessee

In order to furnish a basis for planning agricultural development in the Tennessee Valley, the Division of Soil Survey is cooperating with the Tennessee Agricultural Experiment Station and the Tennessee Valley Authority in making soil surveys for that area. Detailed mapping of the soil types and other physical features of the land is followed by a crop survey in order to establish the yields, crops, and kinds of management most characteristic of each of the widely different soil types.

A somewhat similar type of survey is being conducted in cooperation with the Washington Agricultural Experiment Station at the request of the local residents, in order that a more practical use of lands may be developed and the local expenditures, especially for schools and roads, brought into harmony with the potential producing power of the area.

CHARLES E. KELLOGG, *Bureau of Chemistry and Soils.*

STARCH-Making from Cull Sweetpotatoes is Placed on Commercial Basis

The process devised by the Bureau of Chemistry and Soils[5] for production of starch of high quality from cull sweetpotatoes is now being placed on a commercial basis and it is anticipated that a new starch industry will be developed in this country as a result. The Federal Emergency Relief Administration is financing a sweetpotato-starch factory at Laurel, Miss., to provide employment. This factory will be operated in the interest of a cooperative association of sweetpotato growers and, after setting aside necessary reserves, profits will be distributed to growers on a pro-rata basis. Selection and installation of equipment, as well as initial operation of the factory, are under the technical supervision of the Bureau of Chemistry and Soils. The capacity of this factory is about 2,000,000 pounds of starch annually.

Sweetpotato starch has been tested in several cotton mills and found to be satisfactory for the sizing of warp yarn and for finishing. It gives fully as good results as imported potato starch and also has an advantage in economy in quantity required. All but a small proportion of the potato starch imported into the United States is used in cotton mills.

Dextrine prepared from sweetpotato starch has been tested by the Bureau of Engraving and Printing, and on the basis of both laboratory and machine tests, has been found to be equal to the dextrine made from imported cassava starch which is now used as an adhesive for stamps and for similar purposes. Sweetpotato-starch dextrine is the first domestic product which has met the requirements of the Bureau of Engraving and Printing for this purpose. Under the law requiring the Government to purchase products of domestic origin whenever feasible, it is anticipated that a market will be afforded sweetpotato-starch dextrine for use on postage stamps, envelops, etc., produced or used by the Government.

As a byproduct of starch production there is obtained a residual pulp which after drying can be sold at a profit to feed mixers. The dried pulp can be mixed advantageously with cottonseed meal so as to produce a better balanced ration for cattle feed. Experiments are being made on the possibility of also adding to this feed ground, dried sweetpotato vines which by analysis are not greatly inferior to alfalfa in feeding value.

Transportation Costs

Low transportation costs are an important factor in the success of any industry. The prospective sweetpotato-starch industry will, in general, have minimum transportation costs. Sweetpotatoes are available in large quantities in areas contiguous to southern cotton mills which are expected to use a substantial proportion of the starch. Cottonseed meal is produced in the same areas and the feed will be utilized locally, sales being effected through local feed mixers.

This industry is being developed primarily to afford a market for cull sweetpotatoes, which constitute a large proportion of the field-run crop and which are now largely unremunerative. However, under some conditions it may be both profitable and economically advisable to use field-run sweetpotatoes for starch production. This new industry may contribute to a solution of the problem of utilization of cut-over pineland in the South, particularly in the coastal plains

[5] See Yearbook of Agriculture, 1932, p. 522; 1933, p. 362.

section, which is especially suitable for growing sweetpotatoes. Sweetpotatoes are particularly adapted to newly cleared lands such as cut-over pinelands in the South (U. S. Department of Agriculture Farmers' Bull. 999, Sweetpotato Growing, p. 2). It has been suggested that a feasible means of handling this cut-over land problem is partial reforestation (utilizing turpentine and rosin to cover carrying charges until the trees reach lumber size) together with the growing of sweetpotatoes and other suitable crops. This new industry is expected to provide a market for considerable quantities of sweetpotatoes.

H. S. PAINE, *Bureau of Chemistry and Soils.*

STREAM-IMPROVEMENT Work in the National Forests to Develop Better Fishing Possibly no work done in the national forests by the Civilian Conservation Corps and other relief agencies presents such great opportunities for immediate returns or has proved of so much interest to the general public as the work of stream improvement to develop better fishing. In the Medicine Bow National Forest of Wyoming, as well as in the many other national forests in Wyoming and Colorado where stream-improvement work has been done, it has usually been of two classes. Rearing ponds have been constructed into which fry can be placed for a year or two before being liberated in the trout streams, and improvements made in the streams to better conditions under which trout may grow and develop (fig. 68).

FIGURE 68.—Rearing ponds of various types have been constructed.

Conditions in mountain areas are at best severe and small fry have a slim chance of survival against their many natural enemies, including larger trout, and because of the change from hatchery to field conditions, such as swift running water, small supplies of natural food, and handling between hatchery and stream or lake. To develop fry to fish of sufficient size to withstand most of these dangers, is the

purpose of rearing ponds. These ponds have been built in localities of high altitudes where mountain lakes of glacial origin are to be kept stocked with trout and where fry are retained for but a single season, as well as at lower elevations where the fry may be left for 2 years, when they will be of sufficient size to care for themselves with little or no loss. Loss in planting fry directly into streams or lakes has been reported as high as 95 percent, while loss in small fish transplanted from rearing ponds to streams or lakes is usually almost negligible.

Types of Rearing Ponds

Various types of rearing ponds have been constructed, including earth dams with metal or wood standpipes for draining the pond, earth dams with concrete cores, and timber dams underlaid with loose rock. Some very cheap and serviceable ones have been constructed by making use of beaver dams and installing standpipes and drainage boxes at costs of but $50 to $75. The general plan is to put fry into

FIGURE 69.—Stream improvements provide deep, quiet water and opportunity for plant life to develop, which in turn induces insect life.

the pond in the spring and drain the pond either during the following fall or the second fall, and transport the small fish to streams and lakes by truck or pack horse.

Improvements placed in the rapidly flowing, rock-strewn mountain streams present an opportunity to greatly increase the production of trout. The mountain streams of the West are limited in acre production of fish both by lack of food and depth of water. Improvements now being made include the construction of simple log and rock dams to form stream pools. These provide deep, quiet water and opportunity for plant life to develop, which in turn induces insect life (fig. 69). Deflectors or jetties which force the current to scour the upper portions of pools are also being built as well as brush or log covers close to the shore under which trout may avoid the direct sunlight and take refuge from kingfishers or other enemies.

So far the work is largely experimental, but it is already showing surprisingly favorable results and it is felt that in a year or two these

efforts will greatly increase the fishing opportunities in a region now subject to steadily increasing use.

HUBER C. HILTON, *Forest Service.*

SUGARCANE Crossed With Sorgo Gives Seedlings Potentially Valuable

With due regard for inadequate conception of what constitutes a species and often also a genus in the plant world, it may safely be said that interspecific crosses are not common and intergeneric crosses are exceedingly rare. Well-authenticated examples of intergeneric hybrids in the crop plants are corn-teosinte and wheat-rye, but the majority of cases reported do not stand close scrutiny. It is of special interest, therefore, to record progress in crossing sugarcane (*Saccharum officinarum* L.) with closely related genera in the tribe Andropogoneae or bearded grasses.

As early as 1848 Leonard Wray, a progressive planter operating in Jamaica and later in India, published an account of experiments performed some years previously in which he attempted to cross sugarcane with sorghum (bajra) and Indian corn (boota). Mr. Wray's purpose was not to improve the cane but to find out if by this means sugarcane could be made to produce viable seed. His technic, part of which he owns may have been based on ideas perhaps fanciful, consisted of carefully removing the "eyes" or buds of each node on the prospective parents as they developed side by side, then bringing the "arrows" or flowering stalks into contact and shaking them smartly from time to time. His hope that he might get the flowers of the sorghums and corn "to impregnate and fructify those of the cane" was not realized, and he concluded that sugarcane will not "perfect its seed", a generalization that was disproved only after nearly a half century had elapsed. As a strange coincidence it was in connection with work leading to the discovery that sugarcane can produce viable seed that the next recorded attempts to cross *Saccharum* with other genera were made. In 1886 Soltwedel tried to cross sugarcane with *Erianthus arundinaceum* (Retz.) Jesw. reciprocally, but only the panicles of the wild form, *Erianthus*, produced viable seeds, and these may have been self-fertilized. Twenty years later Wilbrink obtained 30 seedlings from the cross *S. officinarum*×*E. elegans* (Jesw.) Ruemke, and subsequently Jeswiet repeated this cross but without success. Ruemke in 1927 and 1928 crossed sugarcane, EK–28, with *E. sara* (Roxb.) Ruemke and obtained several hundred hybrid seedlings, the somatic chromosomes of which are less than the sum of the haploid number of the parents. The reciprocal cross, *Erianthus*×sugarcane, was a failure, the plants thus obtained being due to self-pollination. Barke in Queensland in 1932 obtained 24 seedlings by crossing *S. officinarum* and *S. spontaneum* with "a species of *Erianthus*", no details being given to indicate whether the seedlings were actually hybrids.

Interest has been stimulated in the intergeneric crosses with sugarcane by the undoubted success of Venkatraman in producing hybrids in 1929 by fertilizing sugarcane flowers, variety P. O. J. 2725, with pollen of a grain sorghum, *Sorghum durra* Stapf. Individuals of the resultant progenies are characterized by wide variation in habit, vigor, and other characters, but morphological studies supported by

cytological evidence, together with the fact that the female parent is regarded as self-sterile, leave no room for doubting that the thousands of seedlings thus produced are intergeneric hybrids. The same investigator has also succeeded in backcrossing the hybrids, using as father the same variety of sorghum.

Object of the Experiments

The pursuit of knowledge and the hope that such researches may eventually lead to production of crop plants of economic importance is the double stimulus which prompts the attempts to secure and study these hybrids. The expenditure of effort and money in crossing the large, thick-stemmed, tropical sugarcanes with the slender, unprepossessing wild cane *Saccharum spontaneum* has already paid enormous dividends. In the hands of expert plant breeders interspecific hybrids of this parentage, endowed with resistance to devastating diseases and superior in yield to the larger parent, have been obtained. As yet the commercial value of the intergeneric hybrids is little known, but certain considerations, which bring out the logic behind these efforts, will make clear that hybridization with genera that are remote from *S. officinarum* is fully justified. Earlier maturity of sugarcane in countries where there is danger of frost damage is greatly desired. The advantage would be mainly to lengthen the period of harvest and grinding at the mill, and keeping the mill in operation longer by starting the campaign at an earlier date would obviously reduce the cost of fabricating sugar. Sorghum, while deficient in cane sugar, matures in little more than half the time required by sugarcane. Compared with 9 or 10 months as a minimum for cane, a few of the sugarcane-sorghum hybrids made by Venkatraman are said to mature in 5 or 6 months and yield satisfactory juices high in sugar. They have been disappointingly low in tonnage per acre, however, and improvement in this respect is being sought.

FIGURE 70.—Hybrid of sugarcane × sorgo in flower. In 16 years' experience the true sugarcane has not been known to flower in the greenhouses at Washington (latitude 38°55′ N.), but this hybrid produced inflorescenses there the first year. The flowers were infertile.

Looking toward plants of earlier maturity for Louisiana, Florida, and other Gulf States, the Bureau of Plant Industry succeeded in

crossing the sugarcane variety P. O. J. 2725 with the grain sorghum Red Durra, and the sugarcane variety I–1081 with Honey, a variety of sorgo, or sweet sorghum, in the fall of 1933. Of the 100 seedlings some have many of the characteristics of sugarcane, but show their sorgo parentage in the long and deep bud grooves, exposed roots of the "flying-buttress" type just above the ground surface, undulating leaf margins, and other gross characters, as well as in the chromosome number, intermediate between those of the parents (fig. 70).

Using the method of emasculating sorghum flowers with hot water, devised by J. C. Stevens and J. R. Quinby, of the Bureau of Plant Industry, the reciprocal cross, sorghum by a pollen-fertile variety of sugarcane, was attempted, but no viable seed was obtained.

The crossing was done at the United States Sugar Plant Field Station, Canal Point, Fla., and is being continued both in Florida and at the United States Sugar Plant Field Laboratory near Guayana, Puerto Rico. The difficulties involved in obtaining plants that meet all requirements are very great, and doubtless years of painstaking effort will be needed before any answer can be had as to the practical possibilities of this method of breeding. No plants are available in excess of the needs of the Bureau.

E. W. Brandes, *Bureau of Plant Industry.*

Tillage Machinery Laboratory Expected to Yield Valuable Data

The development of farm machinery and tillage methods in the past has been largely through empirical methods. The basic relationship between soil types, machine design and operation, and crop production was not known. The difficulties encountered in handling soils in many areas, such as the Black Belt of Alabama and Mississippi, where the topography is well adapted for cultivation with standard-sized machines, resulted in the abandonment of portions of these areas in favor of the eroded and impoverished hill areas, where soils are more easily tilled. There are few plows which will work satisfactorily in waxy, heavy clay soils, which will shed and scour in "push" soils, or will withstand the abrasion of gravelly soils.

In all studies thus far made of tillage machinery under field conditions there have been variables which could not be controlled by the investigators. For instance, it has been impossible to control the soil moisture or to duplicate exactly any set of conditions. The accuracy of field work has also been handicapped by reason of the fact that the testing equipment used had to be supported by the soil under test, resulting in uncontrollable errors. These handicaps to the proper scientific study of the manifold problems connected with tillage have long been recognized. It was realized that the answer to many tillage-machinery problems could not be found unless the studies were made where soil conditions were within the control of the investigator.

To meet this long-felt need a farm-tillage machinery laboratory has been constructed at Auburn, Ala., with funds furnished by the Public Works Administration. The plant consists of 9 soil bins each 250 feet long, 20 feet wide, and 2 feet deep, 2 of the bins being divided in the center. The bins are separated by concrete walls on which are placed rails which support the testing equipment. The testing equipment includes a power car propelled by a 130-horsepower engine, which will make possible the operation of tillage machinery at speeds

of from 0.2 to 10 miles per hour. Supplementary equipment is available for other testing and for fitting the soil.

The soil bins will be filled with 11 distinct types of surface soils of major agricultural importance and which represent progressive steps in variation of the constants of soil classification. These range from sand to tight clay, both new and highly weathered soils. Consequently the results of the tests will have wide application and by proper interpretation will make basic information available to every section of the United States.

The equipment for the laboratory will make it possible to vary the soil conditions in any way desired by the investigators. The soil can be supplied with artificial rainfall or protected from the natural rainfall as desired, thus varying the soil moisture or maintaining a uniform moisture to meet the requirements of the tests.

Plows to be Studied First

The work will be conducted cooperatively with the Alabama Agricultural Experiment Station. The first investigation to be undertaken will deal with plows. The tests will be designed to determine accurately the effects of speed, depth of plowing, width of cut, soil type, soil-moisture condition, and soil compaction upon the draft, and the action upon the furrow slice in throw, inversion, pulverization, and coverage, of a plow bottom. Several types of plow bottoms will be used to determine the effects of shape or type and size of bottom upon the above factors. The data thus obtained will be supplemented by other investigations on the action of plow bottoms due to their shape, by studies of the essential characteristics of various metals used for plow bottoms, and by studies of a measure of tilth based on its relationship to plant growth. The combined results of these studies will provide a basis for the design and development of plows which will operate efficiently and satisfactorily under the conditions for which they are intended.

Similar information will be obtained relating to other tillage machinery, and the results will be available for use in the design of improved equipment for cultivation and for the economical control of weeds. Facilities will likewise be available for studies of the rolling resistance of wheels and traction of tractor wheels, covering the complete range of soil conditions that may be encountered. The results obtained should provide a basis for determining the width of tread and size of wheels which will have the lowest rolling resistance for given conditions and for developing traction equipment which will give a tractor maximum efficiency.

The ultimate purpose of the farm-tillage machinery laboratory is to obtain basic data for use in the development of equipment that will meet the requirements for which it was designed. It is expected that implement manufacturers will take advantage of the facilities which the laboratory will afford to cooperate in investigations of fundamental machinery problems.

It has been estimated recently that 2½ billion horsepower-hours are used annually in plowing and listing alone, and the greater part of all farm power is expended in some form of tillage. If 10 cents be taken as the cost of 1 horsepower-hour the annual plowing and listing bill of the American farmers becomes $250,000,000. Isolated field tests have demonstrated that with proper equipment and meth-

ods very considerable savings can be effected in the cost of power. Furthermore, crop field experiments show that better tillage methods increase crop yields. The farm-tillage machinery laboratory therefore offers opportunities to develop equipment which will reduce the cost of power on the farm and at the same time increase the yield per acre.

J. W. Randolph and I. F. Reed,
Bureau of Agricultural Engineering.

TOBACCO of High Quality Produced Following a Natural Weed Fallow

Early settlers soon observed that virgin lands produced good yields of tobacco and a leaf having a finer texture and lighter body than that grown on the older cultivated areas. It was chiefly this fact that led the early growers of tobacco constantly to clear new lands every few years until most of the land suitable for tobacco in the tobacco-producing areas had been brought into cultivation. It then became necessary for the grower to attempt to find other methods to produce a suitable product. Systematic crop rotation and the use of commerical fertilizers were tried as a means of securing a product of the desired yield and quality. These practices have not proved satisfactory on all soils and with all crop combinations.

It has recently been demonstrated that tobacco fertilized intelligently and grown after a natural weed fallow of sufficient duration possesses in a large measure those characteristics which are found in the crop grown on virgin land. The term "natural weed fallow" is here applied to areas which are not cropped for 1 or more years and are allowed to develop a spontaneous weed cover. When bare fallow was substituted for the weeds there was a rapid decline in the yield and quality of the tobacco after the first 2 or 3 years, as shown in figure 71. This fact illustrates that the weeds are the keystone of the system.

While this system may not always be applicable where there are complicating diseases such as bacterial wilt and nematodes for which the prevailing weed growth furnishes host plants, it will be suitable over other large areas. There are also economic relations to be considered, such as the fact that there are some districts in which good tobacco soils are scarce and high priced; but the system can be used to advantage where the necessary land is available and where it is desired to produce leaf of the characteristics previously mentioned. It must be remembered also that for some purposes of manufacture a thin, light-bodied leaf is not desired.

The general effect of the weed fallow is to promote a quick start and a rapid and uniform growth of the tobacco plants till maturity. The beneficial action of the natural weed fallow on the tobacco is reflected in a uniformly high market value per pound and value per acre for the crop. This in turn demonstrates that the product meets the current demands for manufacturing purposes, especially the production of cigarettes and pipe tobaccos. Intelligent fertilization of the crop and more extensive culture following natural weed fallow of sufficient duration should aid in solving the problem of keeping the

FIGURE 71.—A, Continuous tobacco, no cover crop, showing irregular and stunted growth; *B*, tobacco after 2-year bare fallow; *C*, tobacco after 1-year bare fallow; *D*, tobacco after 1-year weed fallow; *E*, tobacco after 2-year weed fallow.

total production of tobacco within proper bounds and reducing the proportion of low-grade leaf in the crop.

JAMES E. MCMURTREY, *Bureau of Plant Industry.*

TRANSIT-REFRIGERATION Charges on Fruit Reduced by Recent Discoveries

Fruit- and vegetable-producing areas in the far western States are peculiarly dependent upon specialized efficient and economical means of transportation to get their crops to the consumer in an attractive and marketable condition.

California ships annually upwards of 70,000 carloads of oranges, 15,000 of lemons, 2,500 of asparagus, 29,000 of cantaloups and other melons, 6,000 of carrots, 6,000 of cauliflower, 8,000 of celery, 50,000 of grapes, 35,000 of lettuce, 10,000 of peaches, 10,000 of pears, and 3,000 carloads of tomatoes, besides substantial quantities of practically every other fruit and vegetable found on the markets of this country. Roughly, 50 percent of the commercial apples of the country, or about 40,000 carloads, are produced in the Pacific Northwest, chiefly in the Yakima and Wenatchee districts of Washington, while the same area likewise ships about 8,000 carloads of pears and substantial quantities of berries, cherries, onions, potatoes, and other fruits and vegetables.

The development of fruit and vegetable production in these areas, and the prosperity and welfare of all the people engaged therein as well as of the communities supported by these industries, are based entirely upon the successful transportation of the produce to market. Furthermore, the constant and varied supply of fresh fruits and vegetables on the market has changed the dietary habits of the Nation. No longer are fruits and vegetables to be had only seasonally. Most of them are available from some producing area every month in the year, always in fresh, attractive condition, and usually at prices within reach of the average consumer.

In the development of this vast industry and the tremendous business which it supports, refrigerated transportation has played a vital part. The successful application of transit refrigeration to the different products has been brought about in large measure through investigations of the Bureau of Plant Industry concerned with determining the proper stage of maturity at which to harvest and methods of handling, packing, precooling, storage, and transportation.

In earlier years when prices were relatively higher and returns were good, emphasis was naturally placed upon the use of methods that would reduce to the minimum every hazard of spoilage and every condition that would adversely affect the appearance of the product, and would thus deliver only the highest quality goods to the market. The successful shipment of oranges from California was effected primarily by showing the industry how to control blue-mold decay by the use of careful handling methods and satisfactory transit refrigeration. The latter involved improvements in refrigerator-car design and construction and facilities for keeping the cars fully iced throughout the transcontinental trip. Later, methods of precooling were developed to reduce the temperature of the fruit quickly and

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thus still further to remove the hazard of decay, since blue mold does not make much growth at temperatures below 45° F. It is much more important to reduce the temperature of the fruit quickly and have it cold at the start of the journey than to deliver it at a relatively low temperature at the market.

Modifying Transit-Refrigeration Methods

Based on results of these earlier studies, some of the most recent investigations of the Bureau have been directed to the possibility of modifying transit-refrigeration methods. It has been found that instead of reicing orange shipments once every 24 hours, as was formerly the practice, only one reicing in transit is necessary, if the fruit is cold at the start. With this fact demonstrated, and the development of many details of procedure to cool the fruit without excessive cost, a reduction in the refrigeration rate was secured from the railroads which saves the industry $30 to $40 a car, or upwards of a million dollars annually. This saving may well mean the difference between profit and loss in fruit growing.

FIGURE 72.—A railroad-car precooling plant showing method of connecting cold-air ducts to ice-bunker openings. Cold air is blown in at one end of the car and is returned to the refrigerating coils from the other end. The air is reversed periodically to provide uniform cooling. It requires about 8 hours to precool a carload of oranges, and at plants such as the one illustrated, at San Bernardino, Calif., an entire trainload can be handled at one time.

In all the recent investigations of the Bureau on transportation methods the primary objective has been similarly to develop every possible economy, and to reduce costs, while still delivering the produce to market in satisfactory condition. The most recent modification of shipping methods for California oranges, put into effect in August 1934, affords a saving of $15 a car in the charge for precooling when no ice is used in transit. It was found that during the fall and spring when the weather in the eastern part of the country is cool the only refrigeration needed for oranges is enough to keep them from warming up excessively while crossing the hot desert region of the Southwest. By blowing cold air at a temperature of about 25° F. through the loaded cars (fig. 72) for about 8 hours the temperature of the loaded fruit can be reduced to 40° or lower. Then the cars are closed tightly until after the desert region is crossed and the fruit is

satisfactorily protected during this hazardous part of the trip. Thereafter the ventilators are opened and advantage is taken of the cool outside air.

The shipment of pears from the Pacific Northwest offered other opportunities for important modifications in refrigeration with substantial savings to the industry. Pears are far more exacting in their temperature requirements than are oranges, but it was found that when they are properly precooled the size of the carload could be increased from 520 boxes, which formerly was standard, to 640 or even 744, thus reducing the number of cars required to handle the crop and giving the railroads a greater revenue per car. Furthermore, since the cost of transit refrigeration is upon a carload basis, the heavier load resulted in a lower cost per box. The savings to the northwestern fruit industry by use of new methods developed in experimental work of the Department are conservatively estimated at more than a million dollars annually. Practically every kind of fruit and vegetable moving to domestic or overseas markets has similarly benefited in some manner from the Department's handling, transportation, and storage investigations.

D. F. Fisher and C. W. Mann,
Bureau of Plant Industry.

Tuberculin of Greater Purity and Efficiency Developed by Department

The constant search for improved methods of producing biological products for livestock disease prevention and control, by scientists of the Bureau of Animal Industry, has led to the production, from cultures on a new synthetic medium, of a tuberculin that is more efficient as a diagnostic agent than tuberculin produced by other methods. Prior to the development of the new tuberculin, the testing of cattle and other susceptible animals for tuberculosis was conducted with tuberculin made essentially in the same manner as the original product developed by Robert Koch more than 40 years ago.

Although tuberculin made according to the Koch method has given excellent results, it is not a perfect product. In some cases about 2 in 1,000 animals tested, it has been impossible to find lesions of tuberculosis in reacting cattle. In other cases, tuberculous cattle have failed to react to the first test. It was with the hope that facts might be developed that would lead to a reduction of this small percentage of error that the investigations here discussed were undertaken.

The medium used for the Koch tuberculin consists of a clear broth, made from lean beef or veal, to which 1 percent of peptone, 4 to 7 percent of glycerin, and 0.5 percent of salt are added.

This mixture is then inoculated with pure cultures of tubercle bacilli. The bacteria grow on the surface of the broth, forming a film or pellicle which gradually extends until it covers the entire surface. This growth takes place over a period of about 2 months.

At the end of the growing period the broth cultures are sterilized, the dead bacteria are removed by filtration, and the clear, sterile filtrate is concentrated to the desired degree. A suitable preservative is then added. The final product, which is used in testing cattle, contains not only the soluble substances derived from the growth of the tubercle bacilli on broth but also any portions of the culture medium which

have not been used up during the growth of bacilli. It is generally recognized that the Koch or broth tuberculin is extremely complex. It always contains considerable quantities of unused glycerin. In addition there are unused nitrogenous substances derived from the beef as well as similar nitrogenous protein materials derived from the peptone which is added to the broth.

Synthetic Medium

The new synthetic medium developed by the Bureau for bovine tuberculosis contains no protein whatever. The nitrogen required by the bacteria for their growth is supplied by the pure, crystalline amino acid, asparagin, while the carbohydrate and mineral needs of the bacteria are furnished by pure glycerin, dextrose, magnesium sulphate, potassium phosphate, and derivatives of sodium and iron.

Since the active substance in any tuberculin is derived from the growth of the bacilli, the strength must depend primarily on the amount of growth per 100 cubic centimeters of culture fluid, provided the bacteria are the same. Careful investigations and weighings of tubercle bacilli have shown that, under favorable conditions, on the average 0.5 gram of bacilli, dry weight, may be obtained from 100 cubic centimeters of the ordinary glycerinated broth. The synthetic medium affords a vastly greater amount of growth. From each 100 cubic centimeters of culture fluid there is obtained, at the height of the development, an average of 2 grams of tubercle bacilli, or approximately four times as much as is obtained from the same quantity of glycerinated broth medium (fig. 73). So far as known, no other synthetic culture medium for tubercle bacilli has afforded such abundant growth. As was to be expected from the greater growth of bacteria, tuberculin prepared from the synthetic-medium cultures was found, when tested on tuberculous guinea pigs, to be very much more potent than that derived from cultures on the broth medium.

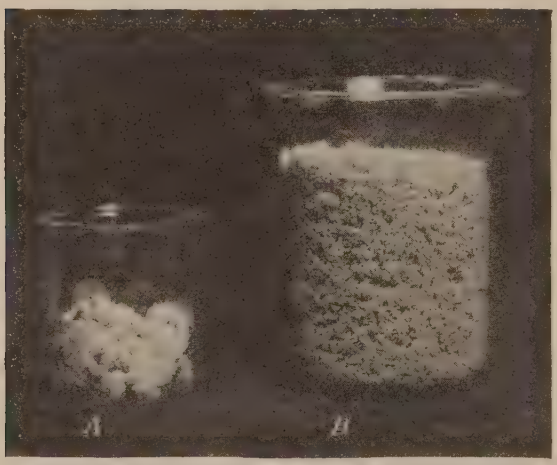

FIGURE 73.—Comparative growth of tubercle bacilli obtained from 1,000 cubic centimeters of culture medium: *A*, Growth from broth medium; *B*, growth from synthetic medium.

Another advantage afforded by the use of the synthetic medium lies in the purity of the final product, that is, the tuberculin. As previously stated, the Koch, or broth tuberculin, always contains, as impurities, considerable unused residues of the culture medium. The newer tuberculin, on the other hand, is essentially a pure solution of the products of the tuberculosis bacillus. This result was attained by adjusting the constituents of the synthetic culture medium so that the bacteria use practically all of them. The final tuberculin contains only

products which are derived from the tubercle bacillus itself. Since the reaction of tuberculous cattle to tuberculin is caused only by the products of the tubercle bacillus, it is evident that the new tuberculin is much purer than the older product.

New Tuberculin More Effective in Tests

The real test of a biological product, however, is in the actual potency when applied to animals. More than 40,000 comparative tests of the old and new tuberculins have been made on cattle. In one series 13,288 cattle were tested simultaneously with both tuberculins by the intradermic method. Of these, 1,127 gave reactions (swellings at site of injection) to the broth tuberculin and 1,268 reacted to the new tuberculin. All these reactors were slaughtered and lesions of tuberculosis were found in 1,205. Every one of these reacted to the new tuberculin but 135 did not react to the old tuberculin. No tuberculous animal in the series reacted to the broth tuberculin without at the same time reacting to the new tuberculin. In the case of the cattle which reacted to both tuberculins, the great majority showed more pronounced and more clear-cut reactions to the new tuberculin.

Since the new tuberculin was thus proved to be more effective when used for diagnosis under practical field conditions, the Bureau discontinued the production of the old tuberculin in April 1934. In its place, the tuberculin produced from cultures on the new synthetic medium is now being used exclusively by the Bureau of Animal Industry in official tuberculosis-eradication work. This new tuberculin is produced in amount sufficient to test more than 18,000,000 cattle annually.

M. Dorset, *Bureau of Animal Industry.*

Vegetable Insects Can be Controlled Without Arsenical-Residue Hazard

The control of insects that attack vegetables and small fruits by means that will not leave harmful residues on the marketed product has continued to receive the attention of the Department. The work of the previous year has been intensified and broadened in scope, and on the basis of this research a mimeographed circular has been issued containing revised recommendations for the control of a number of important pests of these crops. These recommendations emphatically provide that arsenicals or other poisons should not be used after the appearance on the plant of fruit or foliage that would be sent to market or consumed, except in cases in which washing or stripping would remove all harmful residues. In addition to stressing the importance of employing insecticides that do not incur the hazard of harmful residues, special emphasis is given to the time and method of applying insecticides, and supplementary control measures, such as field sanitation and cultural practices, particularly the thorough destruction or utilization of crop remnants after harvest, are recommended.

In this search for substitutes for arsenicals and other means of eliminating harmful residues, extensive experiments have been conducted in Ohio, Virginia, Florida, North Carolina, South Carolina, Louisiana, and California. These experiments have been concerned

chiefly with cabbage, and in general, the results have substantiated those obtained during previous seasons, to the effect that arsenicals and similar inorganic insecticides may be applied to this crop up to within 40 days of harvest without danger of harmful residues remaining on the marketed product. This means that cabbage may be treated with arsenicals before the plant begins to form a head, since all leaves which develop prior to that time have dried or are discarded at the time of harvest.

Use of Derris Combinations

These studies have indicated that derris-root powder containing from 0.5 to 1 percent of rotenone mixed with talc or tobacco dust as a diluent is effective in controlling the common species of cabbage worms. In general, the pyrethrum-dust mixtures and hellebore have been less effective than the derris combinations. The number of treatments and the cost involved in obtaining cabbage-worm control with derris combinations on a commercial basis have not yet been determined for application under the diverse conditions existing in the different parts of the country where cabbage is an important crop. A dust mixture composed of 1 part of paris green and 9 parts of hydrated lime is effective against the common species of cabbage worms, but its use is limited to the early stages of the plant growth, when there will be no danger of harmful residue.

The Department has not had an opportunity to conduct any extensive experiments on the control of cabbage pests on cauliflower, broccoli, kale, or collards in order to determine the possible utility of arsenical substitutes. It is believed, however, that the compounds containing rotenone and pyrethrum should give approximately the same results on these crops as when used on cabbage. There should be little or no danger in the treatment of these crops with arsenicals when they are in the seedling stage. The leaves surrounding the heads of cauliflower are often used for food, and the treatment of the crop should be so regulated that these leaves do not bear any harmful residue. Especial precautions should be exercised in the use of arsenicals or other poisonous materials on broccoli, since the nature of the edible portion of this plant is such that residues are retained for a considerable length of time and there is little likelihood that they will be removed by washing or stripping. Since fields of harvested cabbage and other cole crops serve as sources of infestation to new plantings, particularly in the South, crop remnants should be destroyed or utilized.

Rotenone Effective in Bean Beetle Control

Extensive tests in Ohio and Virginia during 1934 have indicated that the Mexican bean beetle can be controlled effectively, without danger of arsenical residue, by the application of derris sprays or dusts. These sprays or dusts gave excellent foliage protection and increased the yield markedly over that of the untreated plots. In general, a better quality of control has been obtained with the derris-root sprays than with the derris dusts. The derris-root spray was prepared at the rate of 1½ to 2½ pounds of finely ground derris root, containing 4 percent rotenone per 50 gallons of water (equivalent to 0.015 to 0.025 percent rotenone in the spray mixture), with appropriate adjustments for varying rotenone content of the derris root. Cryolite

at the rate of 3 pounds to 50 gallons of water has given results equal to those from magnesium arsenate at the rate of 2 pounds to 50 gallons of water, when applied properly. The derris-dust mixtures contained from 0.5 to 0.75 percent of rotenone with talc, tobacco dust, or ground marc as a diluent.

Tests with the celery leaf tier have shown that compounds containing rotenone are not effective against this insect and that pyrethrum is apparently a specific poison for the pest.

Damage by the pepper weevil has been materially reduced in some areas, especially in California, by the destruction of nightshade, the principal winter host plant of this insect. No insecticidal treatment for the control of this pest has yet been devised which does not involve an undue risk of harmful residue remaining on the market product.

Studies in the control of melon and pickle worms on fall-grown squash in South Carolina have indicated that a derris-root powder containing from 0.5 to 1.5 percent of rotenone is effective against these insects, and a profitable return from the crop has been attained even under conditions that render necessary several treatments at intervals of from 7 to 10 days. Sulphur appears to be an effective diluent for derris-root powder when employed against these pests, and the addition of from 10 to 25 percent of talc or clay, by weight, improves the dusting qualities of the mixture. Cryolite and paris green are effective, and there is no danger of harmful residues when they are applied prior to the formation of the fruits. Calcium arsenate has not proved satisfactory in the control of these insects.

In tests against the turnip aphid in the South, derris-root powder containing 1 percent of rotenone with equal parts of finely ground tobacco dust and sulphur as diluents gave good results, even under the relatively low temperatures prevailing when this pest is most numerous.

Preliminary tests indicated that compounds containing rotenone are effective against the harlequin bug a common pest of many of the important vegetable crops.

Unsatisfactory Results against Tomato Hornworm

Unsatisfactory results were obtained with compounds containing derris or pyrethrum when directed against the tomato hornworm, which was unusually abundant in certain sections of the East during the past season. Fall plowing is an effective aid in the control of this pest.

As a result of extensive esperiments in the State of Washington, it was shown that sprays containing approximately 0.01 percent of rotenone were effective against the raspberry fruit worm, particularly when they were applied after the blooms appeared on the plants, supplemented by a spray containing arsenicals prior to the development of the blossoms. With this procedure no harmful residues were left on the harvested berries.

Injury by the strawberry weevil can be lessened by burning over its hibernating areas. Since such burning is necessary only over areas within 100 feet of strawberry fields and can be conducted during the winter, this method has a very practical application.

D. J. Caffrey,
Bureau of Entomology and Plant Quarantine.

VITAMIN A Value of Plant Feeds Fully Accounted for by Their Carotene Content

In the preceding Yearbook of Agriculture, the writer reported experiments which showed that the health and productiveness of cattle are very dependent on the quantity of vitamin A which they receive in their rations, that these animals usually receive most of their vitamin A in the roughage, and that their health and productiveness are, therefore, commonly dependent on the kind and quality of their roughage. Recent research in the Bureau of Dairy Industry and in other scientific laboratories now throws more light on the chemistry of vitamin A and its distribution in various farm feeds, and on certain important practical considerations regarding the relation between its chemistry and color and its appearance in milk and butter.

Vitamin A appears in the tissues of animals as a nearly colorless highly complex alcoholic compound associated with the fats. Plant tissues, on the other hand, contain several closely related yellow pigments called carotenes. These pigments are hydrocarbons, and are easily converted by animals into colorless vitamin A when consumed as a part of the food. So far, colorless vitamin A has not been found as a natural constituent of plant tissues, and a number of investigations, particularly a recent careful investigation in the Bureau of Dairy Industry on alfalfa hay, have indicated that this compound does not occur in plants, and that the vitamin A activity of plant feeds is wholly accounted for by their carotene content.

The vitamin A content of feeds has been determined in the past in time-consuming experiments involving the rate of growth of rats. Recently, however, fairly rapid and accurate direct chemical methods for the determination of carotene in plant tissues have been developed. As the carotene content of plant tissues is a measure of their vitamin A activity, this activity can now be more quickly and accurately determined in plant tissues by carotene determinations than by the older form of feeding experiments with rats.

Carotene Content of Farm Feeds

Carotene determinations made on the alfalfa plant show that the fresh green plant material cut in the bloom stage is a very rich source of this pigment. When this material is dried and cured for the purpose of making hay a large proportion of its carotene is destroyed, the amount of destruction depending on when the hay is cut and how it is cured. Hay cut in the bloom stage or earlier and cured without exposure to rain or to too much sunshine retains a considerable proportion of its green color and of its carotene content; hay cut in the seed stage or exposed to rain, or for many days to the sun, loses most of both color and carotene. Carotene determinations on a few farm feeds give a general view of the situation, though they are not yet numerous enough to be regarded as reliable averages. The comparatively few results reported in table 13 show that the carotene content, even of a given feed, varies considerably, but that there tend to be very large and more or less characteristic differences between different feeds. The grades of alfalfa and timothy hay given in the table are the standard United States grades which have been described in detail by the Bureau of Agricultural Economics, and the grading of which depends on color, and, in the case of alfalfa, also on leafiness. The No. 1 grade is that which has the most leaves and the most intense green color.

TABLE 13.—*The carotene content of certain farm feeds, given as milligrams per gram of dry matter in the feed. The water content of the feeds is given in order that their original carotene content may be calculated*

Feed	Determinations	Water	Carotene per gram of dry matter		
			High	Low	Average
	Number	*Percent*	*Milligrams*	*Milligrams*	*Milligrams*
Fresh green alfalfa	5	79.6	0.412	0.267	0.326
U. S. No. 1 alfalfa hay	6	8.6	.117	.034	.045
U. S. No. 2 alfalfa hay	2	8.6	.016	.014	.015
U. S. No. 3 alfalfa hay	2	8.6	.012	.001	.007
U. S. No. 1 timothy hay	3	11.6	.024	.009	.019
U. S. No. 2 timothy hay	1	11.6			.008
U. S. No. 3 timothy hay	2	11.6	.011	.002	.006
Fresh green Kentucky bluegrass	2	68.4	.620	.424	.522
Fresh green corn plant; cut, for ensiling	5	78.1	.115	.070	.092
Corn fodder, old and dry	2	9.0	.006	.002	.004
Corn silage	8	73.7	.060	.013	.039
Wheat straw	1	8.4			.002
Corn: ripe grain, yellow dent, and flint	6	11.3	.010	.003	.006
Carrots: yellow, garden	4	88.3	1.128	.709	.949

Relation of Butter Color and Vitamin A

Cows fed on ordinary farm feeds consisting of plant materials depend on the carotene content of the feed for the vitamin A activity of their milk and butter. A part of the carotene of the feed appears as such in the milk fat; another part is converted into colorless vitamin A and appears in the butter as this compound. When the cow is fed on materials low in carotene, the carotene and colorless vitamin A of the milk fat become gradually less and less; the total vitamin A activity of the butter may be 20 times as great on feeds high in carotene as on feeds low in carotene.

The carotenes are the only yellow plant pigments which appear in milk fat in considerable amounts; hence the natural yellow color of cream and butter is due almost entirely to the carotene content. It is an important practical question how far this yellow color is a measure of the vitamin A activity of these dairy products. There are congenital differences between the colors of milk fat secreted by different breeds of cows. Guernseys and Jerseys, for instance, secrete milk fat which has a higher yellow color than that of Holsteins and Ayrshires on the same feed. Experiments have shown that those breeds which secrete the fat with the higher yellow color tend to put more carotene and less colorless vitamin A into the fat than the others, so that the higher colored milk fat of Guernseys is not likely to have any greater total vitamin A activity than the lower colored milk fat of Holsteins, as long as the two breeds are kept on the same kind of feed. The yellow color of milk fat is, therefore, not a good index of the vitamin A activity when the fat of different breeds on the same feed is compared.

But the differences in butter color which can be produced by different kinds of feed are much larger than those which occur among different breeds on the same feed. The butter color of a given breed of cow is rarely as much as twice that of another breed on the same feed, whereas it is easy to reduce the butter color of an individual cow of any breed to less than one-tenth of the original level by changing her from good pasture to a ration of grain and U. S. No. 3 timothy hay. Changes in yellow color so caused are accompanied by roughly proportional

changes in vitamin A activity. As the changes in butter color produced by feed changes, and also the accompanying changes in vitamin A activity, are so much larger than the breed differences which are not an index of vitamin A activity, the natural yellow color of the milk fat is, in general, a fairly good rough index of its vitamin A activity.

EDWARD B. MEIGS, *Bureau of Dairy Industry.*

WATERFOWL Breeding Grounds of Far North Now Poorly Tenanted

While everything possible is being done to restore unwisely drained and cultivated areas in the United States to waterfowl, it must not be forgotten that far to the north there are extensive nurseries to which an adequate breeding stock of the birds must annually be returned.

Investigations conducted by the Bureau of Biological Survey afford many specific instances of excellent breeding grounds that are poorly tenanted, and indicate that this condition prevails over immense areas. The breeding population is relatively sparse over the Canadian and Alaskan ranges of several species of waterfowl that are important by reason of their former abundance and their wide distribution in the United States during their migrating and wintering. Observers of the southward waterfowl flight of 1934 reported the returning flocks from northern nesting grounds as the smallest on record.

Sportsmen and naturalists in the fall of that year were prepared to expect only meager returns from the few nesting grounds that still remain in the drought-parched areas of our northern plains, both in the United States and the Prairie Provinces; but farther north there are still suitable breeding grounds that afford hope for the future—if an adequate seed stock is maintained.

Beyond the northern boundary of the section most affected by the great drought—a curving line that crosses central Canada between Lake Winnipeg and the Rocky Mountains, an area stretching from Hudson Bay to the Rockies and from the Saskatchewan Valley north to the Arctic Ocean—lies a region aggregating upwards of a million and a half square miles that would seem to have been prepared by Nature especially for a waterfowl nursery. Its inherent productivity is the result of a series of great geologic and climatic processes, the most important of which were exerted by the vast ice fields of the glacial period and the readjustments that followed their disappearance. Practically the entire area was then ground and scoured, violent shifts of the soil took place, the drainage systems underwent drastic changes, and myriads of new lakes were formed.

After the recession of the ice many thousands of years passed while Nature clothed the bare rocks with lichens and mosses, fertilized the sterile soil with the products of decayed vegetation, and finally covered the terrain with forests and lesser plants. Through the slow process of encroachment by vegetation, thousands of lakes became marshes and eventually solid ground. Other thousands are still in the process of being filled.

The lichens and mosses, which have so effective a role in first clothing a newly born land, still form an important part of the vegetative cover and make much of the area a vast sponge that receives moisture avidly, but dispenses it with reluctance. Other classes of plants, spread by wind and water and encouraged by the almost con-

tinuous sunlight of the long summers, have helped through the ages to build up a varied and prolific invertebrate and vertebrate fauna, a teeming biota whose members are mutually interdependent. Of this great aggregation the waterfowl are a part.

Vast Number of Lakes and Marshes

Over this vast area of a million and a half square miles, the lakes probably average one to the mile, despite the fact that a few are 200 or 300 miles long. Thus, by a conservative estimate, there are in this region more than a million lakes and marshes virtually unmodified by man's presence, where drought is unknown, and where the food and shelter for waterfowl are ample. Distribution and migration studies show that a large proportion of the waterfowl species most important to wildfowlers not only of the Mississippi Valley but also of both the Pacific- and Atlantic-coast regions, nest naturally in this great area.

From November to mid-April this region is fast frozen, but with the melting of the snow and ice the eager waterfowl return to their ancestral homes there, the earliest following closely the retreating ice. Among the first are the swans, which subsist largely at this season on the roots of the broadleaved cattail (*Typha latifolia*). Shortly afterward follow the Canada goose (*Branta canadensis*), the snow goose (*Chen hyperborea*), Ross's goose (*C. rossii*), and the white-fronted goose (*Anser albifrons*). All these gather at first in the larger marshes and the deltas, where they rest and feed on the sprouting heads and the roots of *Equisetum*, locally called goosegrass, a very abundant plant. Later these geese, as they work their way northward, have recourse to the overwintered berries of a number of trailing upland shrubs, whose fruit is available in spring, when some of the waters are still icebound.

With the geese come ducks of more than a dozen species, and these seek first the larvae, and probably the eggs, of toads and frogs, and the snails of two genera, *Limnaea* and *Planorbis*, that develop by myriads in the waters. Insect life is enormously abundant, and the larval forms of those that develop in the water are especially important. These include May flies (Ephemeridae, both nymphs and adults); dragonflies (nymphs); water bugs and water beetles; and the young of many other smaller insects. Even the thronging larvae of mosquitoes are eaten by the young ducks. As the season progresses the marshes are filled with many plants that furnish food and shelter, including the large reed *Phragmites phragmites*, sedges (*Carex utriculata* and *C. aquatilis*), great bulrush (*Scirpus lacustris*), common pondweed (*Potamogeton natlans*), fennel-leaved pondweed (*P. pectinatus*), white-stemmed pondweed (*P. praelongus*), clasping-leaved pondweed (*P. perfoliatus*), and northern pondweed (*P. alpinus*). Sweet flag (*Acorus calamus*), yellow pond lily (*Nymphaea advena*), water persicaria (*Polygonum amphibium*) and other smartweeds, and the broad-leaved sagittaria (*Sagittaria latifolia*) also abound in suitable places.

That this great region no longer harbors a reasonable share of the teeming waterfowl population that bred there in the early days is most discouraging to conservationists. Old residents testify to a reduction of 75 percent in the past 20 years. Today, with no change in the physical environment, and with a food supply that would still suffice for the former unparalleled wealth of bird life, these myriad swamps and lakes are occupied by scarcely a tenth of their potential waterfowl

population. We have not yet exterminated any of the thirty-odd species that formerly graced this great waterfowl paradise, but we have allowed several of our most beautiful and useful species to be reduced to a pitiful remnant.

Although about 75 percent of the waterfowl shot in North America are taken in the United States, an overwhelming majority of these birds (about 85 percent) are produced in Canada and Alaska, and if the time ever comes when certain of the species are no longer represented in the flocks that come from the far-northern breeding grounds, we shall know that they are gone forever. We have already lost the Labrador duck and several other North American birds whose tremendous populations seemed to early observers to insure their perpetuation, and it is none too soon to take thought of the danger suggested by the rapid diminution of any species that is subject to special pursuit.

The Lesson of the Passenger Pigeon

The folly of relying alone on the presence of extensive breeding areas to perpetuate a threatened species is well illustrated by the story of the extermination of the passenger pigeon. In 1860 a legislative committee of Ohio declared:

> The passenger pigeon needs no protection. Wonderfully prolific, having the vast forests of the north as its breeding grounds, traveling hundreds of miles in search of food, it is here today and elsewhere tomorrow and no ordinary destruction can lessen them.

Ten years later this pigeon, which was numbered among the millions in the memory of many people now living, had become scarce. Within 30 years it was practically extinct, and the last known representative of its race died in a zoological park 20 years ago.

It is well, therefore, before it is too late, that we be warned by the rapid diminution of several of our waterfowl species, the numbers of which a generation ago recall today the scoffings of the last century regarding the passenger pigeon. Unless we take care of the stock that is needed to bring back to its maximum productivity the great northern breeding grounds of the wildfowl, our efforts to restore this great resource by other means will bear but small and bitter fruit, for we shall be without the breeding stock to populate these ancestral grounds.

If, on the other hand, the nature-minded people of North America really wish it, the waterfowl paradise of the North can again welcome to its marshes the hordes that were the wonder of former times. To this end, it is necessary to spare and send back each spring to these fertile nesting grounds a yearly increasing stock of the beautiful species that still carry on there.

EDWARD A. PREBLE, *Bureau of Biological Survey.*

WATERFOWL Problems Clarified by Study of Gunning Practices

With the alarming decrease in waterfowl numbers in North America in recent years, sportsmen and conservationists have been faced with a problem of national importance. The Bureau of Biological Survey, charged by the Migratory Bird Treaty Act with the custodianship of the waterfowl while they are in the United States, has made extensive

studies of the factors affecting the birds. Investigators have obtained essential data on breeding conditions, on natural enemies, and on the potential resources of the waterfowl; also they have studied modern gunning practices.

The destructiveness of any modern hunting method is not so serious when considered alone, but when the various devices and practices are used in combination, they are capable of great abuse. The battery, sinkbox, decoy, scull boat, and repeating gun all become much more deadly when used with bait, for instance.

The baiting practice is vigorously condemned by many and highly praised by others, but this divergence of opinion may be somewhat clarified by pointing out that "baiting" refers specifically to the use of artificial food to attract birds to be killed, whereas "feeding" is the provision of artificial food for all other purposes. Baiting was thus not developed through any altruistic spirit to help waterfowl but to facilitate the killing of birds. The bait (usually grain, such as corn or wheat) is commonly placed within gunshot of blinds, though the methods vary somewhat in different sections of the country. The period of baiting also varies somewhat, but in most areas it covers slightly more than the gunning season and often ceases when the most inclement weather develops—when there is the greatest need for extra food. Only comparatively few of the better clubs continue to feed as long as there are birds left, or until spring migration starts.

Bait probably gives the average gunner a 100-percent advantage, and members of clubs that bait may have fair success in their shooting even though few birds are in the general section. Baiting concentrates the waterfowl in a limited area and quickly tames the birds.

By holding birds in an area where natural conditions would not favor them, baiting, to some extent at least, prevents migration. In an area subject to severe winter freezing this may result in serious losses after the close of the gunning season, when from the standpoint of shooting there is no further occasion for feeding.

In rare cases some advantages accrue from baiting; for instance where a club with large and well-protected holdings reduces the kill that would otherwise occur if the property were open to public shooting. A number of large clubs where baiting is carried on but where only moderate or little gunning is done may serve almost as sanctuaries at private expense. On a few of these, more birds are produced than are killed. It is regrettable that such cases cannot be considered representative of the average club that baits.

Serious Evils From Use of Repeating Guns

Some serious evils of gunning are sometimes brought about through the use of automatic and pump guns, which throughout the country appear to be used more commonly than either the double- or single-barreled gun. The objections to the repeating guns are that in the hands of good shots they facilitate slaughter, and in the hands of less experienced shooters they produce a tremendous amount of crippling. The hunter using a repeating gun is tempted to depend too much upon a barrage of fire in the direction of a flock without taking time to single out his bird. Consequently the standard of accuracy is lowered and the percentage of cripples enormously increased. It rarely happens that one can get more than two shots while the birds are within effective range.

Decoys are used in varying numbers and in many different ways in various parts of the country. Like other methods of gunning their use has greater application as the birds decrease, and there is no question that in most sections they greatly facilitate gunning and increase the kill of birds. Where decoys are used, it is not uncommon to see the ducks alight within a few feet of a blind.

Battery shooting is one of the most criticized methods of gunning. It is used mainly in taking diving ducks in broad waters where the birds cannot be gotten at from shore. Under favorable conditions battery shooting may be deadly. Under Federal regulation it is permitted only in coastal waters. The battery is usually set out with decoys and is generally placed over a baited area or over a natural feeding ground or in a flight lane. When placed near the shore, the battery generally ruins the shooting for gunners on shore. Like the scull boat, it tends to keep the birds continually stirred up, which prevents their resting or feeding. Because batteries are so easily and quickly moved, it is difficult to regulate their number or position on a body of water.

A marked difference may be noted in gunning methods in various sections of the country. Usually the greatest refinements in technic and methods of gunning are found in sections where the birds are scarcest. Methods of gunning for migrants and winter residents are often vastly different because of the varying nature and habits of the birds under their several conditions. The blinds used are of a wide variety, some being temporary affairs hastily built, while others are elaborate, costly, and permanent.

Often, as would be expected, hunting methods vary, depending upon the species, or in the case of a single species, the type of environment. Some of the practices involved are highly technical and require great judgment and experience on the part of the gunner, while others require little more than ability to pull the trigger.

CLARENCE COTTAM, *Bureau of Biological Survey.*

WATERFOWL-RESTORATION Program Undertaken by the Government

Early in 1934 the Secretary of Agriculture, by direction of the President, appointed the President's Committee on Wildlife Restoration to study wildlife problems with particular emphasis upon measures to rehabilitate the rapidly vanishing waterfowl population. This committee—Thomas Beck, chairman, J. N. Darling, and Aldo Leopold—made a thorough canvass of all aspects of the situation, studied a mass of material previously assembled by the Bureau of Biological Survey, and presented a report. Shortly thereafter, under the leadership of Mr. Darling, the Bureau of Biological Survey undertook a national program of waterfowl restoration.

Being in accord with the Administration's policy for the removal of submarginal agricultural land from crop production, the refuge-acquisition program has been in part financed by a substantial sum allotted from emergency appropriations. The drought-relief measure has also furnished funds with which to acquire in drought areas land that is suitable for wildlife, and an Executive order of May 28, 1934, made directly available to the Biological Survey an additional million

dollars with which to carry forward the program. Altogether, funds for the acquisition of land for migratory-bird refuges amount to $6,000,000, supplemented by $2,500,000 for refuge development. With these resources and the data previously assembled by the Biological Survey regarding desirable refuge sites, the Bureau was able to move immediately toward the fulfillment of the wildlife-restoration program.

Since the main objective of this program is a more abundant waterfowl population, it has obviously been necessary to consider first the control and improvement of conditions conducive to the production of the various species. Consequently, the Biological Survey concentrated its initial efforts on the breeding areas within the boundaries of the United States, the most important of which extend from the Great Lakes area to eastern Montana, and from the Canadian border southward. Consideration was also early given to several major projects in the Northwest, in the coastal section of North Carolina, and in the White River Bottoms, Ark. Tremendous handicaps surround the purchase of lands of the character desired for refuge purposes, which in about 80 percent of the cases are complicated by earlier drainage operations or by other incumbrances. In spite of these obstacles in the way of prompt and equitable acquisitions, approximately 550,000 acres in 28 units had by March 31 been taken under contracts of purchase, and about 100,000 acres were being taken by judicial proceedings, several million additional acres were in prospect.

Refuges in Major Waterfowl Flyways

The program contemplates ultimately a series of major refuges extending through the four major waterfowl flyways from the Canadian boundary to the southern limits of the United States. Most of these refuges will contain not less than 20,000 acres each, and some will be much more extensive. So far as physical conditions permit, these large refuges will be approximately 300 miles apart, and will be supplemented by less extensive sanctuaries. Because nesting places play a role of vital importance in any well-considered rehabilitation program, there will be a concentration of refuges for that purpose in the northern reaches of the United States. An extensive system of resting and feeding areas also will be provided on the migration routes and on the wintering grounds.

Mere acquisition of the land and water embraced within the areas selected will, however, not suffice to realize the purpose of the restoration program. Many of the waterfowl concentration areas have been destroyed by drought and by drainage operations or have been so reduced as to offer only the most meager attractions to the birds. A major problem, therefore, is the restoration of an environment that will once more attract them. Such work is being undertaken on every one of the projects selected for this program in the nesting area. For the most part the improvement will be the removal of drainage devices previously installed and the construction of dikes, dams, and water-control works, to impound and stabilize the waters that normally flow into these areas.

RUDOLPH DIEFFENBACH, *Bureau of Biological Survey.*

WEATHER Forecasts for Pest Control Aid Citrus Growers of California

California's citrus crop has returned to the State as much as $135,000,000 in a single year. Its delivered value in the wholesale markets has been as much as $167,000,000. Large as these returns appear, they are offset to a large extent by the heavy costs of production. Weather conditions play a very important part in the growing of the crop. Freezes in winter, unseasonably high temperatures in spring and summer, desert winds with extremely low humidity, and sometimes long-continued periods of rainy or foggy weather, all may seriously damage trees or crops. The California citrus grower probably is more "weather conscious" than any other producer of agricultural products.

California citrus growers do not suffer losses from adverse weather without a fight. Miles of windbreaks protect the groves in the windy districts from the full effects of heavy winds, and orchard heating for the protection of trees and fruit from the winter freezes has reached its highest development here.

Only the grower who keeps his grove in the best possible condition can get the largest return on his investment. Pest control is one of the most necessary of all orchard practices, and also is one of the major items in the expense of growing citrus crops. The total acre treatments per year in southern California alone are in the neighborhood of 125,000 and cost the growers approximately $3,000,000. An additional $3,000,000 is the estimated annual loss through damage to crops by pests in groves not treated, or treated with unsatisfactory results.

Relation of Weather to Spraying and Dusting

Control of pests is accomplished by fumigating with hydrocyanic acid gas, spraying with various materials, or dusting the trees with finely divided sulphur. Any of these methods may cause damage to fruit and trees if applied during or immediately preceding periods of adverse weather. In the coastal area fumigation is not begun until the temperature drops to 70° to 80° F. in the evening and in the interior not until the temperature drops to 80° to 85° F. Fumigation is discontinued whenever the tents become damp with dew. A heavy dropping of fruit also may occur if fumigation is done immediately before temperatures below freezing occur in the orchard, or before the onset of strong east winds from the interior, accompanied by excessively low humidities.

The degree of spray injury due to adverse weather depends on the spray material used, but excessively high temperatures or low relative humidities during or immediately following spray application in southern California citrus districts cause damage no matter what material is used. Some spray materials formerly used rather extensively in citrus groves have been eliminated almost entirely because of danger of weather injury. Definite data on which to base the limits of safety with regard to both temperature and humidity for various spray materials are not yet available, but the establishment of a number of temperature- and humidity-recording stations throughout the southern California citrus districts undoubtedly will bring this question much nearer to a solution.

The present policy is to stop all spraying with oil when the temperature is expected to rise above 100° F. or the relative humidity to fall

below 20 percent within 2 days. Lime-sulphur sprays are considered more dangerous in southern California, and their use is discontinued in that area when temperatures above 90° F. or relative humidities below 25 percent are in prospect. Damage caused by spraying with oil following the application of sulphur dust, in extreme cases as long as 2 months previously, often is intensified by high temperatures. Some lemon groves which received sulphur dust followed 2 weeks later by oil spray during the summer of 1934 lost in excess of 65 percent of their fruit and also suffered severe damage to foliage during the hot spell of July 25 to 27. Four or five days of favorable weather following treatment with sulphur dust or spray usually is enough to avoid danger, although injury has followed dusting even after two or three weeks in some cases.

Temperature Range for Sulphur Dusting

Results secured from sulphur dusting are doubly dependent on weather conditions. In order to control the pests for which it is applied, air temperatures must be high enough to cause fuming of the sulphur particles, but if the temperature rises too high, burning of fruit occurs. In this case also it is not possible to name definite temperature limits, but generally speaking, sufficient fuming for control will not take place at temperatures below 80° F., and damage is likely to begin at temperatures above 100°. Relative humidities below 25 percent increase the amount of damage at any given temperature.

The Weather Bureau during the summer of 1934 began issuing special pest-control weather forecasts from its station at Pomona for the benefit of citrus growers in five southern California counties. Invaluable cooperation in the project has been given by pest-control operators, county agricultural commissioners, and farm advisers, and the Citrus Experiment Station of the University of California at Riverside. Daily forecasts of maximum temperature and relative humidity for a 48-hour period are made for 7 different points in the 5 counties. This is necessary because of the wide differences in temperature and humidity within relatively short distances, owing to differences in topography and distance from the ocean.

During the summer months changes in day temperatures in southern California citrus districts are due almost entirely to fluctuations in the strength of the sea breeze which blows inland from the Pacific Ocean. Any interference with the normal influx of cool air from the Pacific causes the land areas to heat up very rapidly; and conversely, a resumption of the normal sea breeze during the progress of a hot spell causes a rapid lowering of temperatures in the interior. The entire area is occupied throughout the summer period with marine air of high specific humidity, and relative humidity is always high except during periods of unusually high temperature. The forecasting of these summer hot spells is difficult because the balance between the forces causing the sea breeze and tose thending to oppose it is easily upset.

During the spring and fall months the forecasting of day temperature and humidity in this area is considerably less difficult, because atmospheric changes take place on a larger scale and are more positive

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in their action. During these periods the damp marine air over southwestern California is often replaced by much drier continental air, sometimes resulting in the relative humidity falling low enough to cause damage to crops with only moderate temperatures prevailing.

Forecasts Broadcast Daily

The forecasts are broadcast from radio station KNX at Hollywood, Calif., at 12.14 p.m. each day, a time requested by fruit growers and pest-control operators to allow them to listen during the noon luncheon period. They also are placed on the teletype circuit maintained by the California Fruit Growers Exchange about 11.40 a.m., and thus made available to all the field offices of that organization. Many telephone calls and a few personal calls for the forecast are made to the Pomona office at an earlier hour.

On receipt of a forecast of temperature or humidity conditions which might cause damage, pest-control operations are suspended until the conditions moderate. Sulphur-dusting operations are not begun during the spring months until a period of day temperatures above 80° F. is forecast, and operations are discontinued when temperatures above 100° or relative humidities below 20 percent are forecast. Periods with temperatures satisfactory for dusting work in spring sometimes occur only at long intervals and last only a few days. Utilization of the forecasts makes it possible to make all preparations for the application of the dust beforehand.

Information regarding humidity conditions is also utilized in determining at what time of night dew will begin to form on the trees. Fumigating is done at night and must be discontinued as soon as moisture begins to form on fruit or foliage.

Forecasts Utilized by Walnut Growers

While these special forecasts were first requested by citrus growers, the walnut growers of southern California are making use of them in their harvesting operations. A sudden change to high day temperatures and low humidity during the harvest season causes the walnut hulls to dry rapidly and cling to the walnuts, preventing them from dropping to the ground. As a result the nuts hang in the trees too long and develop color in the kernel, causing a reduction in grade.

During cool, damp weather the speed of the harvest is often governed by artificial dehydration capacity. If the nuts are removed from the trees and left in sacks or bins under these conditions, they are likely to depreciate in condition rapidly due to heating and development of mold. At the beginning of a period of hot dry weather there may be large quantities of walnuts ready to be harvested, but still hanging on the trees because the dehydrator cannot handle them fast enough. On the receipt of a forecast of high temperature and low humidity, all the mature nuts on the trees are removed and stored until they can be handled by the dehydrator, since the danger of heating and molding is greatly lessened with low humidity.

Floyd D. Young, *Weather Bureau.*

WEATHER Men of Many Countries Cooperate in the Second Polar Year

About 50 years ago, 12 nations, namely, Austria, Denmark, England, Canada, Finland, France, Germany, the Netherlands, Norway, Russia, Sweden, and the United States, organized 14 expeditions to go into polar regions and establish stations to make simultaneous observations of meteorological, magnetic, and auroral conditions during the period from August 1882 to August 1883, according to a prearranged international plan. These expeditions rendered great service.

Yet many problems remained to perplex the students of meteorology, terrestrial magnetism, and atmospheric electricity. Accordingly, meteorologists in 1928 proposed that the First International Polar Year should be commemorated by a Second Polar Year exactly 50 years after the first one. The International Meteorological Organization, a world-wide association of meteorologists and geophysicists, appointed in 1929 the International Commission for the Polar Year, 1932–33. This organization invited the International Geodetic and Geophysical Union to cooperate in the undertaking. This invitation was accepted. Then began the task of enlisting the aid of the various countries and interested organizations, and carrying out the preliminary steps of the Polar Year program.

Forty-four nations signified their willingness to cooperate. The Department of Terrestrial Magnetism of the Carnegie Institution of Washington, the International Geodetic and Geophysical Union, the Permanent Council for the Exploration of the Seas, and the International Scientific Radio Union, joined whole-heartedly in the endeavor. The work of coordinating the program was done by the International Commission for the Polar Year, 1932–33, under the presidency of D. la Cour, director of the Danish Meteorological Service. This commission held many conferences, received and sifted numerous proposals, drew up detailed instructions regarding necessary observations, instruments, etc., and furthered the undertaking in many ways.

New Stations Established

Meteorological and other stations already established in or near polar regions, and many stations in temperate and tropical regions, prepared for intense observational activity. New stations were established in the far North and the far South, to add to the existing network. The United States opened a station at Point Barrow, the northernmost point in Alaska, and undertook intensive work at College (Fairbanks), Alaska. Canada sent out three expeditions, one to Cape Hope's Advance in Hudson Straits, another to Chesterfield Inlet on Hudson Bay, and a third to Coppermine on Coronation Gulf. England sent an expedition to Fort Rae on Great Slave Lake, Canada. Sweden opened two stations in Spitsbergen (latitude 78° N.). Russia opened a number of stations in the far North of her territory, including one at Hooker Island, Franz Josef Land (latitude 80° N.). Other countries took similar action.

Thus with the collaboration of many nations the Second Polar Year began on August 1, 1932. It closed on August 31, 1933, in the Northern Hemisphere and on December 31, 1933, in the Southern Hemisphere. The meteorological work involved the customary observa-

tions at fixed hours 2 or 4 times per day, as well as the continuous registration of barometric pressure, temperature, humidity, wind direction and velocity, precipitation, and sunshine. It required frequent observations of clouds and weather as well as other phenomena.

Observations of the upper atmosphere were made by releasing small balloons, filled with hydrogen gas, and watching them through a theodolite (a telescope similar to a surveyor's transit with devices for measuring horizontal and vertical angles) to determine the free-air wind directions and velocities. Larger balloons were sent up carrying self-recording instruments to indicate the barometric pressure, temperature, and humidity of the air to great heights well into the stratosphere. When found and returned to the meterological stations these instruments furnished valuable information.

For the first time on a large scale, balloons were used to carry radiometeorographs, which sent radio signals to the earth depicting the barometric pressure and the temperature of the air continuously. This means of investigating conditions at great heights proved invaluable for sparsely settled regions where the chance of finding the instrument was meager. Moreover, it furnished a record immediately. Airplanes carrying self-recording instruments were also employed at various places, including Alaska, to determine conditions aloft.

In addition, a number of stations made observations of atmospheric and terrestrial magnetism and electricity.

Polar Year Charts to be Published

The purpose of the Polar Year was to study conditions on a world-wide scale, and preparations are now being made by the Deutsche Seewarte of Hamburg, Germany, to publish a weather chart for each day of the Polar Year covering the entire Northern Hemisphere, both land and sea. Practically all countries with territory or ships north of the Equator are contributing observations to this end, so that meteorologists may follow cyclones and anticyclones, cold waves, etc., anywhere around the world. Observations of winds and other conditions in the atmosphere from the ground to far into the stratosphere also are being published. By means of these, the circulation of the atmosphere from one hemisphere to the other, east and west, north and south, may be better understood, and weather forecasters will have facts by which to judge when, where, and even how the cold air from polar regions comes into conflict with the warm air from equatorial regions and produces rain.

L. P. Harrison, *Weather Bureau.*

Weather Relations in Successive Months Studied by U. S. Meteorologists

The tendency of certain weather characteristics to persist for considerable periods is well known. Comparatively wet or dry, warm or cool weather, of a given month often carries over into succeeding months. Two or more months in succession rather frequently have weather of the same general character. An examination of weather records shows that this tendency is somewhat pronounced for certain weather conditions and for certain areas; but it is not generally true for different kinds of weather in any particular area nor for all areas.

In fact some localities show quite as marked tendencies to opposite conditions from month to month as others do for agreement. The following summaries indicate these relations for selected States, based on the average State rainfall and average State temperatures for the four principal crop-growing months (May–August). The States, in general, represent areas in which different climatological conditions prevail.

For Nebraska (the records covering 58 years from 1876 to 1933), May rainfall was above normal 24 times and for these years June, July, August, and the summer (June-August) had above normal in just half the years and below normal in the other half. However, for the 25 years in which June had above-normal rainfall July also had above-normal rainfall 16 times and below normal only 9 times, making agreement between the 2 months in 64 percent of the years. For the 24 years in which July had above normal only 10 years had above normal in August. Considering only the months when rainfall was 1 inch or more above normal, no striking relations are shown except in the case of June with July. June had rainfall of 1 inch or more above normal in 9 years and for these 9 years July had above normal 7 times and below normal only twice.

In general, deficiencies of rainfall show a greater tendency to carry over from month to month than do excesses. In Nebraska for the 58 years of record May had 1 inch or more below normal 15 times and for these 15 years June had below normal 9 times, July 11 times, and August 9 times, while the summer, as a whole (June–August) had below normal 11 times. June had 1 inch or more below normal in 16 years and in 10 of these July also had below normal. But little relation is shown between deficiencies in July and August rainfall.

The records show a rather marked tendency in Nebraska for either an unusually wet or an unusually dry spring to be followed by a dry summer. Six years of the 58 had 1 inch or more above normal rainfall in the 3 spring months (March–May) and 4 of the 6 had below-normal rainfall in summer (June–August); 4 had 1 inch or more below normal in spring and of these 4 years, 3 also had below normal in summer.

Warm Weather Has Tendency to Persist

With regard to temperature, there is a much greater tendency for warm weather to persist from month to month than for cool weather to carry over. When temperatures were below normal in Nebraska there were substantially the same number of opposite as of like conditions for the following months, except in June and July. June was 1° F. or more below normal 18 times in the 58 years and of these 18 years July also was below normal 12 times. However, during these 58 years of record in Nebraska the average May temperatures were above normal by 1° or more 23 times and for these 23 years, June had above normal 17 times, July 13, August 17, and the summer 18 times. Also for the 25 years when the June temperature was 1° or more above normal, 72 percent of the Julys were warmer than normal and also a like percentage of Augusts.

In the case of Ohio rainfall for the 61 years of record there is little or no relation shown between May and the succeeding summer months, either when May was comparatively wet or when the month had below-normal rainfall. However, for the 30 years when June had above normal July also had above normal 20 times, but for the 36

years when July had above normal August had like conditions only 15 times. The records show some interesting comparisons for the months having rainfall deficiencies in this State. For the 61 years of record May had 1 inch or more below normal 17 times and for these 17 years June had below normal 8 times, July 4 times, and August 10 times. However, for the 9 years with 1 inch or more below normal in June, July had below normal 7 times, or in 78 percent of the years, and August had like conditions 6 times.

The 46 years of record for Pennsylvania indicate that May does not afford a good index for the succeeding month's rainfall in that State. Here 12 of the 46 years had 1 inch or more below normal in May and for these 12 years June had below normal only 3 times, July 4 times, and August 5 times, while the summer, as a whole (June–August) had below normal only 3 times. However, for the 11 years in which the deficiencies in June were 1 inch or more, July also had below normal 9 times, and August 7 times; while for the 9 years in which July had deficiencies of 1 inch or more 7 of the 9 years had below normal in August also. Again for the 14 years when May had above-normal rainfall amounting to 1 inch or more, only 3 Junes had above normal, 5 Julys, and 6 Augusts. Here again conditions reverse themselves with June, for of the 9 years when that month had an excess above normal of 1 inch or more, 7 of the 9 had above normal in July also. For the 12 years when July had 1 inch or more above normal, the August record was 50–50.

Index Value of Temperatures in Pennsylvania

May temperatures in Pennsylvania appear from the record to afford a better index of conditions for succeeding months than does the rainfall. During the 56 years May was 1° or more cooler than normal 14 times and for these 14 years June, July, and August were cooler than normal 9 times, or in 64 percent of the years, while for the 15 Junes with deficiencies in temperature of 1° or more, 10 had below-normal temperatures in July, and 9 in August. In the 12 years when July was relatively cool 8 had below-normal temperatures in August. Pennsylvania shows also a decided tendency for a warm month to be succeeded by like conditions.

The record for Alabama, typical of the Southern States, shows a decided tendency for wet months to be followed by opposite conditions. For example, for the 50 years of record available, May had 1 inch or more above-normal rainfall 16 times and for these 16 years June had above normal 7 times and July only twice. There were 11 Junes with 1 inch or more above normal and for these 11 July had above normal in only 2 years, and August in 3. Also for the 8 years when July had similar excesses, there were only 2 years with above normal in August. However, there is shown for Alabama a much closer relation between dry months. For the 19 years when May had a deficiency of 1 inch or more of rainfall, 14 of the 19 also had below normal in June, 10 in July, and 12 in August. Again, for the 17 years with like deficiencies in June, July had below normal 11 times; for the 14 years with 1 inch or more below normal in July, August was below 10 times. Thus the records show a decided tendency in this State for a wet month to be succeeded by below-normal rainfall and for deficient rainfall to carry over into the succeeding months. However, when the spring and the summer seasons are considered as a unit there

is a marked seasonal relation shown. For example, during the 50 years under consideration in Alabama there were 21 springs (March–May) with rainfall 1 inch or more above normal and for these 21 years the succeeding summer (June–August) had above normal 15 times, representing 71 percent of the years. Again there were 22 springs with rainfall below normal to the amount of 1 inch or more and for these 22 the succeeding summer had below normal 14 times.

J. B. KINCER, *Weather Bureau.*

WHEAT Exporting from Northwest by U. S. Agency Meets Emergency Problem

When the 1933 crop of wheat in the United States began to move from the farms, an emergency arose in the Pacific Northwest. This region, which comprises the States of Washington, Oregon, and Idaho, normally produces much more wheat than is consumed within the area. Therefore, a larger proportion of the wheat from the Pacific Northwest moves into export trade than is true of other parts of the United States. The principal type of wheat produced in this region is white wheat, chiefly used in the manufacture of cracker and biscuit flour.

On July 1, 1933, 41,800,000 bushels of wheat were carried over from the crops of previous years in Washington, Oregon, and Idaho. This carry-over, added to the crop of 83,000,000 bushels, brought total supplies for Washington, Oregon, and Idaho to nearly 125,000,000 bushels as compared with 108,000,000 bushels in 1932 and a 5-year average (1929–33) of 115,000,000 bushels. These excessive supplies in 1933 in the face of demoralized export markets made it practically impossible to dispose of the surplus from the Pacific Northwest without governmental aid.

Meanwhile, the short crop east of the Rocky Mountains had caused prices to advance until they were considerably above an export basis. Wheat in the Pacific Northwest became distressed because this region is far removed from consuming centers and prices in the region did not follow the rise at Chicago and other markets in the interior. With prices in the Pacific Northwest far below prices in other parts of the country, wheat and flour started to move in a large volume through the Panama Canal and in smaller amounts overland into the southeastern territory and the Atlantic States. This movement had a depressing effect on the entire domestic price level. Furthermore, growers and exporters faced serious congestion at numerous shipping points. The situation was extremely critical and interests in the Pacific Northwest urged the Department of Agriculture to take steps to relieve the situation. These appeals for assistance came from growers, exporters, millers, bankers, and other interests in the region. Grain dealers and millers in the Southwestern and Southeastern states also urged that steps be taken to protect their markets from the effects of sales of distressed wheat from the Pacific coast.

Marketing Agreement Entered Into

In response to these requests the Department made a careful study of the situation. After several hearings, a marketing agreement was entered into by the Secretary of Agriculture jointly with wheat

producers, grain exporters, and millers. The legal authority for this agreement was found in paragraph (2) of section 8 of the Agricultural Adjustment Act which gives the Secretary of Agriculture the power to enter into marketing agreements with those engaged in handling, in interstate or foreign commerce, any agricultural commodity or product thereof. The authority for using proceeds derived from processing and other taxes for the expansion of markets and for the removal of agricultural surpluses was found in paragraph (b) of section 12 of the act.

An association known as the North Pacific Emergency Export Association was formed to serve as a clearing house which arranged, through its members, the details of purchasing, shipping, handling, and selling wheat and flour for export from Washington, Oregon, and Idaho. The agreement provided, further, that the Agricultural Adjustment Administration reimburse exporters for the loss represented by the difference between the price at which the wheat was bought from the producers and the sales price for export in the world's markets. Purchases and sales of wheat and flour and the terms of such purchases and sales, as well as the approval of ship tonnage and destinations were subject to the approval of the Secretary of Agriculture. Fixed handling and selling costs, including milling, were provided for in exhibits attached to the agreement. All expenses of the association were prorated among the members who handled the exports.

One of the main features of the association was that its operations were conducted strictly through the existing regular agencies for handling both wheat and flour and the Government merely assisted in the transaction by assuming the loss between the domestic and export price. Another very important feature about the marketing agreement was that the association could never at any time be long more than 1,000,000 bushels of wheat. This preserved an orderly day-to-day merchandising operation and prevented the accumulation in the hands of the association of any large amount of wheat that would be burdensome and difficult to dispose of as was the case during stabilization operations of the Federal Farm Board.

Portland Prices Gradually Worked Up

The association made its first purchases on October 19, 1933, and its first sales on November 1, 1933. Heavy purchases were made during November and Portland prices were gradually worked up to around 10 or 12 cents under Chicago. From December 1933 to May 1934, inclusive, a sufficient amount of wheat was bought to hold Pacific coast prices at about that relationship with Chicago. The activities of the association practically ceased at the time of the longshoremens' strike which tied up shipping from Pacific coast ports from May 9 to July 31, 1934. After the strike was concluded, the association completed its deliveries on sales which had been made prior to the strike. By October 1, 1934, the 1933 operations were practically complete, although a few forward sales still remained to be shipped for export.

The association purchased a total of 28,390,991 bushels of wheat up to and including October 4, 1934. It sold in the export market a total of 28,383,672 bushels, of which 21,846,284 bushels, or about 77 percent, were sold in the form of wheat and 6,537,384 bushels, or about 23 percent, in the form of flour. Approximately two-thirds of the wheat and flour shipped to foreign markets was shipped in foreign

vessels, and approximately one-third in vessels flying the American flag. About 76 percent of the wheat sold was shipped to China and Japan. Wheat was sold for shipment to the following destinations, in order of volume shipped: China, Japan, Ireland, England, Belgium, several countries in Central America and South America, the Netherlands, Germany, and Finland.

The sale of flour, although smaller in total volume, had a more scattered distribution. About 39 percent of the flour was sold to China and about 33 percent to the Philippines. The destinations in order of volume were as follows: China, Philippine Islands, Norway, Manchuria, Scotland, Guatemala, Ecuador, Nicaragua, Haiti, Salvador, Cuba, Peru, the Netherlands, Costa Rica, Panama, Honduras, Finland, Mexico, Japan, Denmark, New Zealand, Guam, Tahita, Saigon, Canary Islands, Egypt, Virgin Islands, Jamaica, Colombia, Venezuela, West Indies, Sumatra, British East Africa, and Mozambique.

The prices at which wheat was bought ranged during most of the marketing year between 70 and 80 cents a bushel. Sales prices of wheat ranged rather widely, but for the most part were around 50 to 52 cents a bushel f. o. b. steamer. The bulk of the flour was sold at prices between $2.40 and $2.80 per barrel. The difference between prices paid and prices received was remitted to the members of the association out of funds collected from the wheat-processing tax. It is estimated that not more than $6,500,000 was spent in this operation. This amounts to an average of a little less than 23 cents a bushel on the wheat handled.

The Effects of the Export Operation

The operation of the North Pacific Emergency Export Association retarded the movement of distress wheat from the Pacific Northwest into eastern markets. It accounted for about 87 percent of the net exports of wheat including flour from the United States during 1933–34. The operation of the association reduced the spread between Pacific coast prices and prices east of the Rockies. During July, August, and September 1933, before the association was open for business, farm prices in Washington averaged about 15 cents a bushel under the average farm price for the entire United States; from November 1933 to May 1934, while the association was in operation, farm prices in Washington averaged only 12 cents a bushel under the average farm prices for the country as a whole. During July, August, and September1933, Seattle prices averaged about 21 cents under Chicago futures and during a brief period were as low as 26 cents under Chicago. From November to May the average spread between Chicago and Seattle prices was about 12 cents a bushel and on some days the spread was as low as 6 cents.

The operation of this association was an emergency activity. It offered tremendous relief to producers and other interests in the Pacific Northwest in disposing of the burdensome surpluses of the 1933 crop. It also prevented the low price of that wheat from depressing domestic values in the entire United States. This operation, however, does not represent any fixed, permanent policy on the part of the Administration for disposing of export surpluses but was strictly an emergency measure.

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WIND Erosion Can be Controlled by Proper Tillage Operations

Soil erosion by wind has been more destructive throughout the Great Plains area during 1933 and 1934 than for any other similar period since the native sod was broken for crop production. Millions of acres are subject to wind erosion, and from hundreds of thousands of acres of level to slightly rolling land the soil was blown as deep as the fields had been tilled the previous year (fig. 74). Fences, Russian-thistles, weeds, shrubs, farm machinery in the fields, farmsteads, windbreaks, roads, or any obstruction that might retard the wind velocity and permit the soil to settle were filled or covered with wind-blown soil.

The principal causes of the disastrous soil blowing in 1933 and 1934 were continuous high winds, intensive cultivation, the practice of burning stubble, low rainfall, and lack of organic matter to hold the

FIGURE 74.—The tilled soil in this field has been nearly all blown away and the subsoil shows the marks of the tillage implements.

soil in place. The loam and light sandy soils are most subject to blowing. Under the same conditions the light sandy soils will usually blow before the heavier loams.

One of the best methods to control soil blowing on continuous-wheat land is to begin immediately after harvest with a lister, one-way disk plow, or duckfoot cultivator. The duckfoot can be used provided the stubble is not too heavy or the soil too dry and hard. These implements cover some of the stubble but leave some uncovered and some only partially covered. The land then will not blow badly and is in good condition to retain sudden heavy rains. The next operation should preferably be made after a few rains have occurred and weed growth has started. The field may be relisted by splitting the ridges, or the ridges may be worked down with a ridge buster, weeder, or other implement capable of leveling the ridges and furrows. This second operation further mixes the soil and stubble.

The land should be kept free of weeds from the time the lister ridges are worked or after the first one-way disk plow, tandem disk, or duckfoot operation until seeding for wheat. The amount of rainfall received usually determines the number of times the soil must be worked to destroy the weed growth. Whatever implement is used, the surface soil should not be worked to a fine dust mulch. A cloddy surface is desired for rainfall absorption and for control of blowing. Such implements as the duckfoot cultivator, spring-tooth harrow, subsoil packer, and rod weeder are much preferred to the one-way disk plow, tandem disk harrow, peg-tooth harrow, clod crusher, or surface roller, for prevention of soil blowing. For seedbed preparation the proper use of the lister, ridge buster, one-way disk plow, duckfoot, or subsoil packer will usually be found sufficient for small-grain and sorghum crops.

The methods of tillage described above for continuous wheat may be used in the fallow system. Fallow tillage begins early in the

FIGURE 75.—The surface soil is being rapidly blown off this field.

spring, before weed growth starts. The implements and the order of their use are similar to the continuous-wheat methods. The land must be kept in a roughened condition and free of weeds. A roughened cloddy soil surface is more difficult to maintain due to the lack of new stubble and to more tillage operations which tend to pulverize the soil to a fine dust. Listing and relisting by splitting the ridges is one of the best methods to maintain a rough cloddy soil surface and to thoroughly mix the old stubble in the soil. In the winter-wheat area of the Central Plains the field should be allowed to remain in a rough condition until 45 to 60 days before seeding. Then the lister ridges must be worked down, subsoil packed, and field rendered free of weeds, but care must be taken not to produce a fine surface soil by the use of disk or drags.

The greatest danger of soil blowing is during the winter and spring months. Three factors are responsible for this; (1) the weathering of the soil during the winter, (2) high winds, and (3) lack of sufficient plant growth to protect the weathered surface soil. Wind erosion should be checked as soon as it starts. Usually the first sign of soil

blowing is a little dust rising from a small portion of the field. Later the dust will come from a larger area and if control measures are not begun promptly all the field will eventually be blowing (fig. 75).

The best method of checking soil blowing is by roughening the surface in strips at right angles to the prevailing winds (fig. 76). A cultivator or spring-tooth harrow may be used for this purpose. A lister is preferable in light sand or loose, dry loam soils. One to three lister furrows made every 10 rods usually are sufficient but the entire

FIGURE 76.—A field listed in parallel strips to check wind erosion.

field may require listing to stop the soil movement. If the soil is dry and very loose, even listing does not always check the soil movement.

In a clean-tilled field enough clods must be brought to the surface and remain there to prevent the shifting of fine silt and sands. Dry dusty loam and light sandy soils do not have clods near the surface. Rainfall is needed to pack the surface or the lister must penetrate to the moist hard subsoil and lift the clods to the surface.

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AGRICULTURAL STATISTICS

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The statistical section of this Yearbook brings together what seem from experience to be the most important agricultural statistics of the United States, and of the world so far as the agriculture of this country is concerned. Important historical and geographical series have been given for the more recent years. Most of the data for earlier years, not covered in this Yearbook, will be found in previous issues.

For greater detail on individual commodities, the Statistical Bulletin series may be consulted. Statistical Bulletins 37 to 48, inclusive, have been published during the last 3 years and relate to wheat, corn, cotton, fruits and vegetables, forest products, and cold-storage holdings.

For current statistics to supplement Yearbook statistics, the following sources should be used: (1) Crops and Markets, a monthly publication of the Department carrying the latest current statistics on agriculture in the United States; (2) Foreign Crops and Markets, issued weekly by the Bureau of Agricultural Economics and devoted to current world statistics of crops, livestock, and markets; (3) foreign commodity reports, published by the Bureau of Agricultural Economics and showing the latest world information on single commodities and released when important information is received; (4) the Agricultural Situation, issued monthly; (5) market news reports of the Bureau of Agricultural Economics, issued daily, weekly, monthly, quarterly, or at irregular intervals at Washington or at the principal markets. Requests for these publications may be addressed to Division of Economic Information, Bureau of Agricultural Economics, Washington, D. C.

The crop and livestock reporting service estimates acreage, condition, yield per acre, production, prices paid to producers, and farm value of crops; also numbers, production, prices paid to producers, and value of livestock and livestock products. The organization of this service outside of the Crop Reporting Board and the office force in Washington consists of 40 State field offices, each with an agricultural statistician in charge. There is 1 field office for the New England States, 1 for Maryland and Delaware, 1 for Utah and Nevada, and 1 for Washington and Oregon.

Acreages for the year 1909 are as reported by the Bureau of the Census; acreages in 1919, 1924, and 1929 are based on the census supplemented by State enumerations. In the intercensal years, from 1910 to 1915, estimated acreages were obtained by applying estimated percentages of decrease or increase to the published acreage of the preceding year. The estimates from 1916 to 1918, 1920 to 1923, 1925 to 1928, and 1930 to 1934 are based on acreage changes from year to year as shown by a sample of over 2 percent of the crop acreages in each year, supplemented by State enumerations.

Yields per acre are estimates based on reports of one or more farmers in each agricultural township on the average yield per acre in their localities. For 1929 to 1934, yields for all crops except cotton have been adjusted to be comparable with yields derived from the census figures of 1919, 1924, and 1929. For all crops except cotton and a few minor crops, yields from 1919 to 1928 have been adjusted to be comparable with the census yields of 1919, 1924, and 1929. For these same crops, revisions of acreage have been made for the period 1919 to 1928 essentially to the acreages reported by the censuses of 1920 and 1930. For cotton, both acreage and yield have been revised to the basis of the 1930 census. Production is acreage times the yield-per-acre figure. Linters are not included in cotton figures, unless so stated in the respective tables.

In this Yearbook are shown for the first time historical revisions prior to 1919, by which the currently published estimates have been made consistent with the decennial census figures, supplemented by State enumerations. These historical revisions are limited at present to the first tables, or master tables, under wheat, corn, oats, and cotton. For other important crops, revised data will be published in future issues.

Estimates of farm stocks, sales, quality, crop condition, and miscellaneous information concerning crops are based either upon sample data or upon estimates of crop reporters for their localities.

The term "commercial" is used in connection with certain crop estimates to distinguish some part of the total production of a crop. Except for indicating that the entire production is not represented in the estimate, "commercial" does not have the same meaning in each instance where used. The commercial apple-crop estimate, for example, represents that portion of the total apple crop which is sold or available for sale for consumption as fresh fruit. That portion of the crop which is used for cider, vinegar, canning, evaporating, or other manufacture is not included in the commercial crop as defined in this case. The commercial orange and grapefruit crops in Florida represent the portion shipped or to be shipped out of the State by rail, boat, or autotruck, as differentiated from the portion canned, made into juice, sold or consumed locally, wasted, etc.

Estimates of commercial truck-crop production are concerned only with those areas growing crops primarily to supply the large consuming markets more or less distant from the producing center. Production in home and market gardens, intended primarily for local sale, is excluded. Similarly with truck crops grown for commercial canning or manufacture, the estimates include only quantities grown for use by canning or packing establishments and exclude quantities canned in the home. For the commercial acreages in the areas concerned, the truck-crop estimates are intended to include the total production suitable for food marketing purposes (unless destroyed by natural cause before harvest), whether or not the entire crop finds a market or use. It is, therefore, customary practice to retain in these production estimates those quantities of produce which ordinarily would be marketable but which are left unharvested because of adverse marketing conditions. The canning-crop estimates represent the total quantity of raw product used by packers or canners for manufacturing purposes, including cold-packing.

Monthly prices received by producers on the specified dates are based on reports from special price reporters on the average price paid to farmers for all grades and qualities of a specific commodity. These men are mostly country buyers of or dealers in agricultural products.

Farm values of crops as shown are computed mostly by applying to total production the December 1 price paid to producers. These prices are reported by the crop reporters, who are farmers. The average price received for the portion of the crop sold may be greater or less than this price, depending on the prices previous and subsequent to December 1 and the amount of the crop sold at the different prices. For the years 1919 to 1934, weighted average prices for the crop-marketing season and farm values based on these weighted prices have displaced the December 1 prices and values for many crops.

For commercial truck crops and canning crops, and for certain fruit crops, the prices shown are the estimated season averages of the prices received by producers at the shipping point, including the cost of the container where this is a customary requirement of delivery. The December 1 price has been employed in computing farm values only in the case of certain miscellaneous crops of minor importance, where neither weighted averages of monthly prices nor estimates of average prices for the entire marketing season are available.

The index numbers of prices received by producers (farm prices) were revised in 1934. This revision was begun in 1931 to utilize the results of the 1930 census and additional data provided by the crop-estimating service for making index numbers of farm prices more representative of the actual changes in the prices of all farm products. The principal changes are: (1) the use of improved price series for dairy products and tobacco; (2) the addition of the prices of 20 products, including a group of truck crops; (3) shifting the weights from the marketings of the 1918–23 period to those of the 1924–29 period; and (4) index numbers for each group of commodities are weighted in proportion to that group's contribution to total cash farm income, whereas formerly the combined index of farm prices was computed from the weighted aggregate value of the 27 commodities used in the earlier series.

Numbers of livestock on farms on January 1, 1920 and 1925, are based on the census enumerations as of those dates, supplemented by enumerations by

State agencies, such as assessors' and brand-inspection boards, and by records of shipments during 1920 and 1925. Numbers on January 1, 1930, give weight insofar as feasible to the numbers reported by the census of 1930 which was as of April 1, with allowance for indicated changes between January 1 and April 1. In the intercensal years, from 1911 to 1919, the numbers of livestock were obtained by methods similar to those used for crop acreages. Estimates from 1921 to 1924, from 1926 to 1929, and from 1931 to 1935 are based on a sample of over 2 percent, supplemented by trends derived from assessors' enumerations, reports of brand-inspection boards, market movements, and stockyard receipts. The census bases are not always comparable from one decade to another, because of changes of dates and classifications.

The average value per head on January 1 is estimated from reports of correspondents relating to livestock in their vicinity. These tend to reflect inventory values as distinguished from the monthly prices which relate to sales. The farm value on January 1 is computed by applying the average value per head to the number on farms.

The Federal market news service supplies much of the information on market prices and movements. The leased-wire telegraph system in use by this service extends from the Atlantic to the Pacific Ocean and reaches most of the important markets. At each of the branch offices commodity specialists gather information regarding supply, market demand, and prices of the products on which they report. They observe sales actually made on the markets and are constantly in touch with the traders, who in many instances give them access to their office records in order that they may have specific information on which to base their reports. Car-lot shipments and market receipts of crops and livestock products are reported by officials and agents of railroads, express companies, and boat lines, or are compiled from trade publications. Shipments to market by motor truck have continued important, and at a few of the markets receipts by truck are reported by dealers and distributors. Data on receipts, slaughter, and shipments of livestock are obtained from monthly reports submitted by the public stockyards. Data on cold-storage stocks are obtained directly from all important cold-storage warehouses, and data on commercial stocks of grain are reported by boards of trade, etc. Leaf-tobacco stocks are reported directly by dealers and manufacturers.

Where a weighting factor is available, market prices as shown are weighted averages. But in many cases a weighting factor is not available, and the prices shown are usually the means of ranges of quotations without reference to quantity.

Prices derived from different sources may not be strictly comparable, although for most purposes they are satisfactory. Data as to commercial stocks and movements of various commodities are as nearly complete as practicable and are considered fairly representative.

The tables of international trade cover substantially the international trade of the world. The total imports and total exports in any one year cannot be expected to balance, although disagreements tend to be compensated over a series of years. Among the sources of disagreement are: The different periods covered by the year of various countries; imports received in the year subsequent to the year of export; lack of uniformity in classification of goods as among countries; different trade practices and varying degrees of failure in recording countries of origin and ultimate destinations; different practices in recording reexported goods, and different methods of treating free ports. Exports given are domestic exports and the imports given are imports for consumption whenever it is possible to distinguish such imports from general imports, that is, "special" or net, instead of general. General imports are all the imports reported. In foreign countries "special" trade is imports for consumption, or net imports, or imports less reexports. In the United States imports for consumption are those entered for actual consumption and include withdrawals from bonded warehouses for consumption. "Special" or net figures are used in the international trade tables for the following countries: Belgium, Denmark, Egypt, Irish Free State, China, Netherlands Indies, France, and the United Kingdom. In the United States trade tables and wherever United States figures are used, they are domestic exports and general imports unless otherwise specified. While there are some inevitable omissions, there may be some duplications because of reshipments which do not appear as such in the official reports. In the trade tables, figures for United States include Alaska, Puerto Rico, and Hawaii, but do not include the Philippine Islands or the Virgin Islands of United States.

Statistics of acreage and production in foreign countries are compiled as far as possible from official sources and are, therefore, subject to whatever errors may

result from shortcomings in the reporting and statistical services of the various countries. Inaccuracies also result from differences in nomenclature and classification in foreign countries. Except where otherwise stated, pre-war data refer to pre-war boundaries. Yields per acre are calculated from acreage and production, both rounded to thousand units, and are therefore subject to a greater possibility of error when calculated for countries with small acreage.

Agricultural Adjustment Administration work got under way about the middle of 1933. This Yearbook contains 10 summary tables, indicating in a general way some of the results of that work. These tables comprise the last pages in the section on Farm Business and Related Statistics.

Prices prevailing in 1933, 1934, and 1935 are stated in terms of United States currency, unless otherwise specified. For the convenience of those wishing to convert currency prices to gold prices, a table of the gold value of the dollar, weekly from April 1933 to March 1935, will be found as the last table in this Yearbook.

As an aid to the comprehension and use of these statistics, the following table of weights, measures, and conversion factors will be useful. It represents the important basic figures, used in the Yearbook:

Weights, measures, and conversion factors used in the Yearbook of Agriculture

Commodity	Unit [1]	Net weight in pounds	Commodity	Unit [1]	Net weight in pounds
Alfalfa seed	Bushel	60	Hempseed	Bushel	44
Apricots	do	48	Lemons	Box	76
Barley	do	48	Milk	Gallon	8.6
Beans, dry	do	60	Oats	Bushel	32
Do	Bag	100	Oranges (Florida)	Box	90
Buckwheat	Bushel	48	Oranges (California)	do	70
Clover seed	do	60	Orchard grass	Bushel	14
Corn, ear, husked	do	[2] 70	Peanut oil	Gallon	7.5
Corn, shelled	do	56	Potatoes	Bushel	60
Cotton, ginned	Bale	[3] 500 [4] 478	Rapeseed	do	50
			Rice, rough	do	45
Cottonseed	Bushel	32	Rice, milled	Pocket	100
Cottonseed oil	Gallon	7.5	Rye	Bushel	56
Cranberries	Barrel	100	Soybean oil	Gallon	7.5
Flaxseed	Bushel	56	Spelt	Bushel	40
Flour, various	Barrel	196	Timothy seed	do	45
Grain sorghums	Bushel	56	Tomatoes	do	53
Grapefruit (Florida)	Box	80	Wheat	do	60
Grapefruit (California)	do	60	Various commodities	Short ton	2,000

Commodity	Unit	Equivalent to—
Almonds	1 pound shelled	About 3½ pounds unshelled.
Apples	1 pound dried	About 7 pounds fresh.
Do	1 barrel	3 boxes or 3 bushel baskets.
Barley flour	1 barrel (196 pounds)	About 9 bushels of barley.
Buckwheat flour	do	About 7 bushels of buckwheat.
Filberts	1 pound shelled	About 2.22 pounds unshelled.
Malt	1.1 bushels	About 1 bushel of barley.
Oatmeal	1 barrel (196 pounds)	About 10⅘ bushels of oats.
Peaches (California)	1 pound dried	About 5½ pounds fresh.
Peanuts	1 pound shelled	About 1½ pounds unshelled.
Prunes	1 pound dried	About 2½ pounds fresh in California; 3 to 4 pounds in other States.
Raisins	1 pound	About 4 pounds of fresh grapes.
Rice	1 pound milled	About 1.62 pounds of rough rice.
Rye flour	1 barrel (196 pounds)	About 6 bushels of rye.
Walnuts, English	1 pound shelled	About 2.38 pounds unshelled.
Wheat flour	1 barrel (196 pounds)	About 4.7 bushels of wheat.[5]

[1] Standard bushel used in the United States contains 2,150.42 cubic inches; the gallon, 231 cubic inches.

[2] The standard weight of 70 pounds is usually recognized as being about 2 measured bushels of husked corn on the ear, as it requires 70 pounds to yield 1 bushel, or 56 pounds, of shelled corn.

[3] Gross.

[4] For statistical purposes the bale of cotton is 500 pounds gross or 478 pounds net weight. Actual bale weights vary from year to year and the customary average weights of bales of foreign growths differ from that of the American square bale.

[5] This figure has been used for conversions relating to the period 1921–34. Because of changes in milling processes the following factors have been used for earlier periods: 1790–1879, 5 bushels; 1880–1908, 4.75 bushels; 1909–17, 4.7 bushels; 1918 and 1919, 4.5 bushels; 1920, 4.6 bushels.

STATISTICS OF GRAINS

TABLE 1.—*Wheat: Acreage, production, value, and foreign trade, United States, 1866–1934*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Wheat per bushel at Chicago, 1866–67 to 1898–99, spring wheat, 1899–1900 to date, No. 2 Hard Winter, year beginning July 1 [2]	Wheat per bushel at Minneapolis, 1899–1900 to 1917–18, No. 1 Northern spring, and 1918–19 to date, No. 1 Dark Northern spring, year beginning July 1 [3]	Foreign trade, including flour, year beginning July [4]			
								Domestic exports [5]	Imports [6]	Net exports [7]	
										Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1866	15,408	11.0	169,703			189		12,647	3,092	10,828	6.4
1867	16,738	12.6	210,878			189		26,323	2,014	24,550	11.6
1868	19,140	12.9	246,272			128		29,717	1,830	28,314	11.5
1869			*287,746*								
1869	21,194	13.7	289,526			99		53,901	1,286	53,126	18.3
1870	20,945	12.1	254,429			115		52,574	867	52,195	20.5
1871	22,230	12.2	271,881			124		38,996	2,411	37,587	13.8
1872	22,962	11.8	271,482			121		52,015	1,841	50,705	18.7
1873	24,866	12.9	321,931			116		91,510	2,117	90,418	28.1
1874	27,310	13.0	356,115			95		72,913	368	72,845	20.5
1875	28,382	11.1	313,728			106		74,751	1,664	74,508	23.7
1876	28,283	10.9	309,116			122		57,044	366	57,148	18.5
1877	27,963	14.1	395,510			111		92,142	1,391	92,028	23.3
1878	33,379	13.5	449,175			90		150,503	2,074	150,253	33.5
1879	*33,430*	*13.0*	*459,483*								
1879	35,347	13.0	459,234			110		181,807	487	181,951	39.6
1880	38,096	13.2	502,257			99		188,308	212	188,250	37.5
1881	36,795	11.0	405,886			129		123,371	867	123,211	30.4
1882	36,496	15.1	552,207			105		150,113	1,088	150,000	27.2
1883	35,587	12.3	438,762			93		113,822	33	113,892	26.0
1884	38,485	14.8	571,292			80		135,232	213	135,301	23.7
1885	35,095	11.4	399,931			81		96,611	389	96,569	24.1
1886	36,312	14.1	513,540			77		156,685	283	156,760	30.5
1887	36,873	13.3	490,761			75		122,616	596	122,524	25.0
1888	34,969	12.1	423,867			95		90,944	136	91,030	21.5
1889	*33,580*	*13.9*	*468,374*								
1889	36,098	14.0	504,370			81		112,488	163	112,507	22.3
1890	36,686	12.2	449,042			97		109,017	586	109,054	24.3
1891	41,090	16.5	677,543			89		229,465	2,463	228,841	33.8
1892	42,979	14.2	611,854			73		196,068	968	195,672	32.0
1893	40,790	12.4	505,795			60		168,498	1,183	167,531	33.1
1894	40,167	13.5	541,873			57		148,630	1,439	147,740	27.3
1895	38,998	13.9	542,119			61		130,099	2,117	130,345	24.0
1896	40,828	12.8	522,963			70		148,767	1,545	148,725	28.4
1897	43,113	14.0	606,202			91		221,143	2,060	220,965	36.5
1898	50,506	15.2	768,148			71		227,240	1,876	227,300	29.6
1899	*52,589*	*12.5*	*658,534*								
1899	52,342	12.5	655,143			68	67	190,772	320	190,749	29.1
1900	49,203	12.2	599,315			72	75	220,653	603	220,723	36.8
1901	50,847	15.0	762,546			71	72	239,212	121	239,137	31.4
1902	46,244	14.9	686,959			73	74	207,835	1,080	208,016	30.3
1903	48,456	13.7	663,115			81	89	124,977	229	124,926	18.8
1904	43,155	12.9	555,571			101	113	46,319	3,296	43,612	7.8
1905	46,306	15.2	706,026			88	84	101,089	273	100,849	14.3
1906	46,230	16.0	740,509			76	83	150,597	602	150,594	20.3
1907	44,139	14.2	628,764			96	107	166,525	530	166,304	26.4

See footnotes at end of table.

TABLE 1.—*Wheat: Acreage, production, value, and foreign trade, United States, 1866–1934*—Continued

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Wheat per bushel at Chicago, 1866–67 to 1898–99, spring wheat, 1899–1900 to date, No. 2 Hard Winter, year beginning July 1 [2]	Wheat per bushel at Minneapolis, 1899–1900 to 1917–18, No. 1 Northern spring, and 1918–19 to date, No. 1 Dark Northern spring, year beginning July 1 [3]	Foreign trade, including flour, year beginning July [4]			
										Net exports [7]	
								Domestic exports [5]	Imports [6]	Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1908	45,102	14.3	642,818			100	111	116,373	475	115,901	18.0
1909	*44,263*	*15.4*	*683,379*								
1909	44,262	15.5	683,927			109	109	89,173	845	88,465	12.9
1910	45,793	13.7	625,476			100	105	71,338	1,175	70,164	11.2
1911	49,894	12.4	618,166			94	107	81,891	3,445	78,447	12.7
1912	48,413	15.1	730,011			94	87	145,159	1,304	143,938	19.7
1913	52,012	14.4	751,101			89	88	147,955	2,402	146,306	19.5
1914	55,613	16.1	897,487			111	120	335,702	728	335,162	37.3
1915	60,303	16.7	1,008,637			114	109	246,221	7,254	239,591	23.8
1916	53,510	11.9	634,572			157	176	205,962	24,960	181,067	28.5
1917	46,787	13.2	619,790			228	220	132,579	31,215	102,775	16.6
1918	61,068	14.8	904,130			224	236	287,402	11,289	276,615	30.6
1919	*73,099*	*12.9*	*945,409*								
1919	73,700	12.9	952,097	216.3	2,059,421	227	300	222,030	5,511	216,671	22.8
1920	62,358	13.5	843,277	182.6	1,539,584	216	201	369,313	57,682	312,625	37.1
1921	64,566	12.7	818,964	103.0	843,458	128	148	282,566	17,375	265,590	32.4
1922	61,397	13.8	846,649	96.6	817,929	113	126	224,900	20,031	205,079	24.2
1923	56,920	13.3	759,482	92.6	703,283	106	124	159,880	28,079	131,892	17.4
1924	*50,862*	*15.7*	*800,877*								
1924	52,460	16.0	840,091	124.7	1,047,703	139	158	260,803	6,201	254,695	30.3
1925	52,441	12.8	669,142	143.7	961,801	161	165	108,035	15,679	92,669	13.8
1926	56,815	14.7	833,544	121.7	1,014,623	140	151	219,160	13,264	205,994	24.7
1927	59,628	14.7	874,733	119.0	1,041,209	138	141	206,259	15,734	190,578	21.8
1928	59,226	15.4	912,961	99.8	911,065	117	126	163,687	21,442	142,301	15.6
1929	*62,000*	*12.9*	*800,649*								
1929	63,320	13.0	822,180	103.4	850,308	130	130	153,245	12,956	140,361	17.1
1930	62,661	14.2	889,702	67.0	596,096	84	82	131,475	19,059	112,435	12.6
1931	57,103	16.3	932,221	39.0	363,727	53	71	135,797	12,886	123,774	13.3
1932	57,114	13.1	745,788	37.9	282,808	53	61	41,211	9,382	32,285	4.3
1933	47,910	11.0	528,975	74.1	391,778	94	91	37,001	11,494	25,507	4.8
1934 [8]	42,235	11.8	496,469	88.0	436,872						

[1] Calculations of average price and farm value not completed. Beginning with 1919 prices are weighted average prices for crop marketing season.

[2] 1866–67 to 1884–85, No. 2 spring—simple average of mean of weekly high and low cash prices, as quoted in annual reports of the Chicago Board of Trade; 1885–86 to December 1896, No. 2 spring—simple average of mean of daily high and low cash prices, as quoted in Bartel's Red Book (summary of current quotations in Chicago Daily Trade Bulletin); January 1897–June 1898, No. 3 spring and 1898–99, No. 1 spring—simple average of mean of daily high and low cash prices as quoted in Chicago Daily Trade Bulletin; 1899–1900 to date, No. 2, Hard Winter computed by weighting selling prices by number of car lots sold, as reported in the Chicago Daily Trade Bulletin.

[3] 1899–1900 to 1917–18, No. 1 Northern spring and 1918–19 to date No. 1 Dark Northern spring, computed by weighting selling prices by number of car lots sold as reported in the Minneapolis Daily Market Record.

[4] Compiled from Commerce and Navigation of the United States, 1866–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34. Wheat flour converted to terms of grain on the following basis: 1866–79, 5; 1880–1908, 4.75; 1909–17, 4.7; 1918 and 1919, 4.5; 1920, 4.6; 1921–34, 4.7 bushels of grain per barrel of flour.

[5] Includes flour milled from imported wheat.

[6] Includes wheat imported for milling in bond and export.

[7] Total exports (domestic plus foreign) minus total imports; beginning 1933–34 net figures are domestic exports minus imports for consumption. (See introductory text.)

[8] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised. See introductory text. Italic figures are census returns.

TABLE 2.—*Wheat, winter, durum, and other spring: Acreage seeded and harvested, and production, United States, 1909–34*

Year	Winter wheat				Durum wheat [1]				Other spring wheat			
	Acreage seeded in preceding fall	Acreage harvested	Average yield per acre	Production	Acreage seeded	Acreage harvested	Average yield per acre	Production	Acreage seeded	Acreage harvested	Average yield per acre	Production
	1,000 acres	*1,000 acres*	*Bushels*	*1,000 bushels*	*1,000 acres*	*1,000 acres*	*Bushels*	*1,000 bushels*	*1,000 acres*	*1,000 acres*	*Bushels*	*1,000 bushels*
1909	29,196	27,018	15.5	417,796								
1910	32,878	28,152	15.3	429,875								
1911	33,514	29,780	14.4	428,740								
1912	35,709	28,406	14.2	402,703								
1913	33,608	31,962	15.7	501,239	From 1909 to 1918 the only available data represent "all spring wheat," no segregation being made between "durum" and "other spring."							
1914	37,372	36,203	18.5	670,945								
1915	40,657	39,597	16.2	640,565								
1916	38,873	34,078	13.4	456,118								
1917	37,981	26,825	14.5	389,956								
1918	43,399	37,171	15.0	556,506								
1919	51,391	50,404	14.8	748,460	[2]	3,893	7.3	28,324	[3] 26,049	19,403	9.0	175,313
1920	45,505	40,409	15.2	613,227	[2]	4,400	9.9	43,550	[3] 22,472	17,549	10.6	186,500
1921	45,479	43,160	14.0	602,793	[2]	6,009	9.0	54,212	[3] 22,202	15,397	10.5	161,959
1922	47,415	41,649	13.7	571,459	[2]	5,659	14.5	82,245	[3] 19,748	14,089	13.7	192,945
1923	45,408	38,712	14.3	555,299	[2]	4,064	9.6	38,961	[3] 19,102	14,144	11.7	165,222
1924	38,635	35,415	16.1	571,558	[2]	3,674	16.1	59,114	[3] 17,068	13,371	15.7	209,419
1925	40,920	31,962	12.5	401,116	[2]	4,158	14.0	58,010	[3] 20,816	16,321	12.9	210,016
1926	40,603	37,596	16.8	631,950	4,882	4,577	9.3	42,469	15,483	14,642	10.9	159,125
1927	44,134	38,195	14.3	547,666	5,478	5,445	14.4	78,359	16,037	15,988	15.6	248,708
1928	48,431	36,853	15.7	577,417	6,884	6,804	14.1	95,802	15,822	15,569	15.4	239,742
1929	43,918	41,188	14.2	586,055	5,772	5,571	9.8	54,710	17,097	16,561	11.0	181,415
1930	44,971	40,933	15.4	631,205	4,836	4,745	12.2	57,719	17,427	16,983	11.8	200,778
1931	45,240	43,080	19.0	817,962	4,093	2,960	7.0	20,712	16,285	11,063	8.5	93,547
1932	42,283	35,216	13.6	478,291	4,187	3,946	10.3	40,600	18,457	17,952	12.6	226,897
1933	42,669	28,485	12.3	350,792	3,140	2,310	7.2	16,737	21,160	17,115	9.4	161,446
1934 [4]	41,850	32,945	12.3	405,034	2,046	990	7.2	7,086	16,475	8,300	10.2	84,349

[1] Figures on durum apply to 4 States only—Minnesota, North Dakota, South Dakota, and Montana.
[2] Included in "All spring wheat"; see footnote 3.
[3] All spring wheat.
[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised. See introductory text.

TABLE 3.—*Wheat, durum and other spring: Acreage seeded, by States, average 1927–31, and annual 1932–34*

State	Durum				Other spring			
	Average, 1927–31	1932	1933	1934 [1]	Average, 1927–31	1932	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*
Illinois					140	99	59	37
Minnesota	231	110	90	63	1,076	1,182	1,438	1,383
North Dakota	3,826	3,072	2,378	1,552	6,630	7,826	8,994	7,205
South Dakota	1,326	962	630	400	2,227	2,834	3,440	2,560
Nebraska					172	202	414	268
Montana	30	43	42	31	3,586	3,709	3,257	2,704
Wyoming					192	143	196	80
Colorado					343	302	368	350
New Mexico					30	31	25	21
Utah					75	76	74	70
Nevada					11	17	15	13
United States [2]	5,413	4,187	3,140	2,046	16,534	18,457	21,160	16,475

[1] Preliminary.
[2] For other States than those in this table, harvested acreage and seeded acreage are the same.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 4.—*Wheat, winter: Acreage seeded and percentage of acreage abandoned, by States, averages, and annual 1932–34*

State and division	Acreage seeded in autumn of—				Percentage abandoned [1]			
	Average, 1927–31	1932	1933	1934 [2]	Average, 1922–31	1932	1933	1934 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*	*Percent*	*Percent*	*Percent*
New York	239	233	274	274	3.8	1.5	3.5	8.0
New Jersey	53	49	50	52	2.4	.5	2.0	2.5
Pennsylvania	982	893	903	903	3.0	1.0	2.5	4.5
North Atlantic	1,274	1,175	1,227	1,229	3.2	1.1	2.6	5.2
Ohio	1,820	1,865	1,782	1,871	13.4	1.0	2.0	2.5
Indiana	1,781	1,653	1,837	1,910	10.5	3.0	5.0	2.0
Illinois	2,212	1,713	1,924	1,924	11.6	3.0	3.0	5.0
Michigan	756	833	825	808	3.5	1.0	3.0	5.0
Wisconsin	36	36	35	28	10.6	6.0	12.0	48.0
Minnesota	204	188	198	133	11.0	5.3	16.0	60.0
Iowa	379	229	312	340	5.6	11.0	9.0	20.0
Missouri	1,677	1,412	1,550	1,938	8.1	10.0	4.0	2.0
South Dakota	168	348	303	167	18.6	10.0	50.0	86.0
Nebraska	3,667	2,890	3,063	3,247	9.8	33.5	30.0	30.0
Kansas	13,255	12,853	12,082	13,049	13.1	20.1	47.4	28.3
North Central	25,954	24,020	23,911	25,415	11.5	16.8	31.0	21.1
Delaware	99	86	84	92	2.3	2.0	4.0	4.0
Maryland	469	401	395	403	2.6	5.0	1.5	2.0
Virginia	623	561	590	608	2.6	1.5	2.0	2.0
West Virginia	113	130	146	161	4.6	1.0	1.5	3.5
North Carolina	350	399	445	467	3.0	1.0	2.0	2.5
South Carolina	57	77	87	91	5.2	2.5	4.0	2.0
Georgia	55	71	87	83	10.2	4.0	5.0	3.0
South Atlantic	1,766	1,725	1,834	1,905	3.3	2.4	2.1	2.4
Kentucky	274	296	338	345	13.2	12.0	7.0	9.0
Tennessee	294	296	336	326	7.1	3.0	3.5	4.0
Alabama	3	4	8	8	8.3	3.0	10.0	16.0
Arkansas	26	31	36	43	9.3	10.0	12.0	8.0
Oklahoma	4,685	4,419	4,338	4,685	10.2	10.0	30.0	18.0
Texas	3,883	4,491	4,087	4,373	17.1	25.6	56.1	30.0
South Central	9,165	9,537	9,143	9,780	12.3	17.2	40.7	22.5
Montana	846	865	788	906	25.5	20.0	25.0	20.0
Idaho	683	605	527	580	6.0	7.0	20.0	11.0
Wyoming	180	202	180	171	12.7	35.0	50.0	59.0
Colorado	1,545	924	1,205	964	25.2	60.0	71.0	60.0
New Mexico	417	400	344	361	40.0	45.9	45.0	68.0
Arizona	25	47	51	46	3.1	1.5	2.0	2.0
Utah	193	189	170	180	2.9	4.0	5.0	10.0
Nevada	3	2	3	3	1.0	5.0	1.0	2.0
Washington	1,324	1,392	1,040	1,248	16.5	6.0	60.0	10.0
Oregon	869	850	746	783	10.0	4.0	70.0	18.0
California	725	736	681	735	17.6	11.1	11.0	23.0
Western	6,809	6,212	5,735	5,977	18.9	22.7	45.0	29.5
United States	44,969	42,669	41,850	44,306	12.2	16.7	33.2	21.3

[1] For entire season, planting to harvest. Includes winter abandonment, which is estimated on May 1 of each season.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 5.—*Wheat: Acreage, production, and weighted average price per bushel received by producers, by States, average 1927–31, and annual 1932–34*

State and division	Acreage harvested				Production				Price for crop of—		
	Average, 1927–31	1932	1933	1934 [1]	Average, 1927–31	1932	1933	1934 [1]	1932	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*	*Cents*
Maine	2	3	5	5	49	66	120	120	75	128	150
Vermont	1				23						
New York	259	201	233	260	4,855	4,086	4,512	4,416	58	88	100
New Jersey	55	50	48	49	1,240	1,050	1,056	1,127	59	93	98
Pennsylvania	981	898	878	869	18,271	13,465	15,783	14,759	57	87	94
North Atlantic	1,298	1,152	1,164	1,183	24,438	18,667	21,471	20,422	57.4	87.7	95.8
Ohio	1,467	1,585	1,833	1,740	29,673	32,456	34,812	33,401	47	88	92
Indiana	1,542	1,468	1,580	1,808	27,626	23,502	22,905	32,152	43	86	90
Illinois	2,006	1,652	1,721	1,854	34,372	24,978	27,418	29,495	42	85	90
Michigan	758	702	818	793	15,609	16,771	13,457	11,120	45	80	92
Wisconsin	103	110	104	108	1,986	2,109	1,616	1,647	53	81	100
Minnesota	1,472	1,462	1,629	1,242	20,974	20,839	16,665	12,534	44	77	103
Iowa	426	273	251	287	8,211	4,350	4,303	3,028	38	78	92
Missouri	1,510	1,404	1,359	1,522	20,374	15,733	16,989	21,281	41	82	88
North Dakota	9,560	10,639	10,098	3,782	107,531	110,396	72,115	21,196	36	70	101
South Dakota	3,405	3,958	1,248	151	36,466	53,468	5,120	598	34	69	97
Nebraska	3,717	2,277	2,437	2,310	65,418	27,958	29,206	15,838	36	72	89
Kansas	12,029	10,365	6,774	8,669	176,235	120,178	57,504	79,700	33	71	88
North Central	37,995	35,895	29,852	24,266	544,475	452,738	302,110	261,990	37.4	76.7	91.1
Delaware	102	79	83	81	2,002	908	1,162	1,539	57	90	92
Maryland	475	380	395	387	9,375	4,940	6,320	7,934	53	91	93
Virginia	616	579	550	578	9,582	6,253	7,425	8,092	58	93	97
West Virginia	107	116	128	141	1,679	1,276	1,856	1,974	60	89	98
North Carolina	340	376	391	434	3,661	3,572	3,714	4,340	69	103	108
South Carolina	53	80	74	85	546	760	592	765	65	105	113
Georgia	54	74	67	84	505	703	536	756	67	106	113
South Atlantic	1,747	1,684	1,688	1,790	27,348	18,412	21,605	25,400	59.5	94.3	98.4
Kentucky	212	270	275	308	2,969	2,835	3,300	4,250	48	93	92
Tennessee	287	272	286	323	2,950	2,584	2,917	3,392	60	96	99
Alabama	3	6	4	7	31	60	34	66	59	96	108
Arkansas	22	31	27	33	241	248	216	297	44	86	97
Oklahoma	4,269	3,966	3,093	3,557	52,641	47,592	31,549	37,348	32	68	82
Texas	3,092	3,330	1,973	2,861	39,653	28,293	14,008	25,749	32	74	81
South Central	7,885	7,875	5,658	7,089	98,495	81,612	52,024	71,102	33.5	72.9	83.1
Montana	3,847	4,070	3,551	2,572	50,388	55,610	26,480	28,174	34	63	90
Idaho	1,219	1,100	959	906	27,343	28,360	17,235	18,696	31	55	72
Wyoming	310	277	234	130	4,039	3,102	2,138	1,041	31	62	87
Colorado	1,547	680	548	650	20,144	7,135	5,912	5,776	37	65	86
New Mexico	277	276	245	125	3,837	2,027	1,485	711	35	72	90
Arizona	24	38	46	50	554	798	1,288	1,000	55	80	84
Utah	257	260	254	220	5,519	5,332	4,079	3,147	41	66	85
Nevada	15	18	17	15	372	461	378	336	59	78	84
Washington	2,294	2,203	2,136	1,883	45,345	40,348	43,044	37,346	38	60	77
Oregon	1,034	991	903	832	22,701	20,060	17,608	12,944	41	64	77
California	641	595	655	524	11,362	11,126	12,118	8,384	53	78	79
Western	11,463	10,508	9,548	7,907	191,603	174,359	131,765	117,555	36.9	63.0	80.4
United States	60,388	57,114	47,910	42,235	886,359	745,788	528,975	496,469	37.9	74.1	88.0

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 6.—*Wheat, winter, durum, and other spring: Acreage, yield, and production, by States, averages, and annual 1933 and 1934*

WINTER

State and division	Acreage harvested			Yield per acre			Production		
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
New York	249	225	252	19.0	19.5	17.0	4,674	4,388	4,284
New Jersey	55	48	49	21.7	22.0	23.0	1,240	1,056	1,127
Pennsylvania	971	871	862	18.4	18.0	17.0	18,080	15,678	14,654
North Atlantic	1,274	1,144	1,163	18.7	18.5	17.3	23,994	21,122	20,065
Ohio	1,454	1,828	1,737	18.6	19.0	19.2	29,431	34,732	33,350
Indiana	1,529	1,570	1,800	16.9	14.5	17.8	27,401	22,765	32,040
Illinois	1,866	1,662	1,828	17.2	16.0	16.0	31,611	26,592	29,248
Michigan	749	808	784	19.5	16.5	14.0	15,440	13,332	10,976
Wisconsin	37	32	18	18.9	14.5	11.5	729	464	207
Minnesota	166	158	79	19.1	15.0	10.0	3,284	2,370	790
Iowa	378	208	250	19.9	18.0	11.0	7,422	3,744	2,750
Missouri	1,499	1,356	1,519	13.6	12.5	14.0	20,225	16,950	21,266
South Dakota	112	174	42	13.3	5.0	4.0	1,386	870	168
Nebraska	3,545	2,023	2,144	15.6	12.8	7.0	62,866	25,894	15,008
Kansas	11,996	6,759	8,659	13.6	8.5	9.2	175,876	57,452	79,663
North Central	23,330	16,578	18,860	15.3	12.4	12.0	375,671	205,165	225,466
Delaware	102	83	81	19.0	14.0	19.0	2,002	1,162	1,539
Maryland	475	395	387	19.6	16.0	20.5	9,375	6,320	7,934
Virginia	616	550	578	14.9	13.5	14.0	9,582	7,425	8,092
West Virginia	107	128	141	14.4	14.5	14.0	1,679	1,856	1,974
North Carolina	340	391	434	10.5	9.5	10.0	3,661	3,714	4,340
South Carolina	53	74	85	10.0	8.0	9.0	546	592	765
Georgia	54	67	84	9.1	8.0	9.0	505	536	756
South Atlantic	1,747	1,688	1,790	15.1	12.8	14.2	27,348	21,605	25,400
Kentucky	212	275	308	13.6	12.0	13.8	2,969	3,300	4,250
Tennessee	287	286	323	11.2	10.2	10.5	2,950	2,917	3,392
Alabama	3	4	7	10.9	8.5	9.5	31	34	66
Arkansas	22	27	33	10.6	8.0	9.0	241	216	297
Oklahoma	4,269	3,093	3,557	12.1	10.2	10.5	52,641	31,549	37,348
Texas	3,092	1,973	2,861	12.1	7.1	9.0	39,653	14,008	25,749
South Central	7,885	5,658	7,089	12.2	9.2	10.0	98,495	52,024	71,102
Montana	636	649	630	14.9	9.5	14.0	9,016	6,166	8,820
Idaho	655	484	469	19.6	15.0	17.5	12,950	7,260	8,208
Wyoming	130	101	74	14.4	8.0	6.5	1,707	808	481
Colorado	1,237	268	482	12.0	9.0	7.8	15,491	2,412	3,760
New Mexico	246	220	110	10.3	5.5	5.1	3,421	1,210	561
Arizona	24	46	50	21.2	28.0	20.0	554	1,288	1,000
Utah	182	180	153	18.1	13.0	10.5	3,333	2,340	1,606
Nevada	4	2	3	23.6	24.0	20.0	89	48	60
Washington	1,194	557	936	23.0	22.0	22.7	29,344	12,254	21,247
Oregon	864	255	612	21.2	19.5	14.5	19,286	4,972	8,874
California	641	655	524	18.2	18.5	16.0	11,362	12,118	8,384
Western	5,814	3,417	4,043	17.7	14.9	15.6	106,553	50,876	63,001
United States	40,050	28,485	32,945	15.2	12.3	12.3	632,061	350,792	405,034

DURUM

Minnesota	231	88	57	14.8	10.0	12.0	3,270	880	684
North Dakota	3,600	2,093	900	12.0	7.3	6.9	44,028	15,279	6,210
South Dakota	1,249	93	11	11.9	3.5	3.5	13,890	326	38
Montana	25	36	22	11.9	7.0	7.0	273	252	154
4 States	5,105	2,310	990	12.1	7.2	7.2	61,460	16,737	7,086

[1] Preliminary.

TABLE 6.—*Wheat, winter, durum, and other spring: Acreage, yield, and production, by States, averages, and annual 1933 and 1934*—Continued

OTHER SPRING

State and division	Acreage harvested			Yield per acre			Production		
	Average, 1927–31	1933	1934[1]	Average, 1922–31	1933	1934[1]	Average, 1927–31	1933	1934[1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Maine	2	5	5	21.6	24.0	24.0	49	120	120
Vermont	1			19.5			23		
New York	10	8	8	18.0	15.5	16.5	181	124	132
Pennsylvania	11	7	7	17.3	15.0	15.0	191	105	105
North Atlantic	24	20	20	18.6	17.4	17.8	444	349	357
Ohio	13	5	3	20.3	16.0	17.0	242	80	51
Indiana	13	10	8	17.2	14.0	14.0	225	140	112
Illinois	140	59	26	19.5	14.0	9.5	2,761	826	247
Michigan	9	10	9	18.1	12.5	16.0	168	125	144
Wisconsin	66	72	90	18.8	16.0	16.0	1,258	1,152	1,440
Minnesota	1,076	1,383	1,106	14.0	9.7	10.0	14,420	13,415	11,060
Iowa	48	43	37	15.8	13.0	7.5	789	559	278
Missouri	11	3	3	14.4	13.0	5.0	149	39	15
North Dakota	5,960	8,005	2,882	10.8	7.1	5.2	63,503	56,836	14,986
South Dakota	2,044	981	98	10.1	4.0	4.0	21,191	3,924	392
Nebraska	172	414	166	13.2	8.0	5.0	2,553	3,312	830
Kansas	33	15	10	8.6	3.5	3.7	358	52	37
North Central	9,584	11,000	4,438	11.4	7.3	6.7	107,617	80,460	29,592
Montana	3,185	2,866	1,920	13.0	7.0	10.0	41,099	20,062	19,200
Idaho	564	475	437	23.8	21.0	24.0	14,393	9,975	10,488
Wyoming	180	133	56	12.6	10.0	10.0	2,332	1,330	560
Colorado	309	280	168	14.7	12.5	12.0	4,653	3,500	2,016
New Mexico	30	25	15	12.4	11.0	10.0	416	275	150
Utah	75	74	67	27.4	23.5	23.0	2,186	1,739	1,541
Nevada	11	15	12	25.4	22.0	23.0	283	330	276
Washington	1,099	1,579	947	14.7	19.5	17.0	16,001	30,790	16,099
Oregon	169	648	220	18.0	19.5	18.5	3,415	12,636	4,070
Western	5,624	6,095	3,842	15.1	13.2	14.2	84,777	80,637	54,400
United States	15,233	17,115	8,300	12.7	9.4	10.2	192,838	161,446	84,349

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 7.—*Wheat: Acreage, yield per acre, and production in specified countries; average, 1921–22 to 1925–26, annual, 1931–32 to 1934–35*

Country	Acreage					Yield per acre					Production				
	Average, 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]	Average, 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]	Average, 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]
NORTHERN HEMISPHERE	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
North America:															
Canada	22,083	26,201	27,182	25,991	23,985	16.6	12.3	16.3	10.4	11.5	366,483	321,325	443,061	269,729	275,252
United States	57,557	57,103	57,114	47,910	42,235	13.7	16.3	13.1	11.0	11.8	786,866	932,221	745,788	528,975	496,469
Mexico	2,098	1,501	1,104	1,173	1,179	5.0	10.8	8.7	10.3	8.6	10,388	16,226	9,658	12,122	10,104
Guatemala	24	16	14			9.2	8.4	13.9			222	135	195		
Europe:															
United Kingdom:															
England and Wales	1,746	1,197	1,288	1,660	1,759	33.7	30.0	32.0	35.4	37.1	58,800	35,915	41,253	58,725	65,259
Scotland	57	50	52	78	93	39.5	35.8	43.1	44.5	44.6	2,251	1,792	2,240	3,472	4,152
Northern Ireland	6	3	3	6	9	30.8	35.3	40.3	37.8	40.3	185	106	121	227	363
Irish Free State	34	21	21	50	89	33.3	37.2	39.6	39.7	37.8	1,131	781	831	1,983	3,360
Norway	27	29	28	28	46	23.6	20.4	26.8	27.0	25.4	637	592	749	755	1,168
Sweden	352	683	746	799	742	30.1	24.9	35.5	36.6	39.9	10,602	17,033	26,500	29,204	29,578
Denmark	202	259	245	265	282	44.4	38.8	44.9	44.3	44.3	8,973	10,053	10,997	11,728	12,493
Netherlands	147	192	297	338	359	41.9	35.2	43.2	45.3	47.9	6,162	6,751	12,837	15,325	17,196
Belgium	339	381	386	372	379	38.9	36.3	39.8	40.5	37.2	13,194	13,817	15,376	15,067	14,101
Luxemburg	23	23	31	34	40	17.0	17.7	23.2	29.3	26.5	392	406	719	995	1,061
France	13,507	12,840	13,428	13,503	13,109	21.5	20.6	24.8	26.8	25.3	290,774	264,117	333,524	362,330	332,000
Spain	10,457	11,245	11,248	11,168	11,101	13.6	12.0	16.4	12.4	16.2	142,420	134,427	184,207	138,235	180,042
Portugal	1,078	1,271	1,461	1,423	1,458	10.3	10.2	16.0	11.3	14.1	11,103	12,999	23,400	16,013	20,486
Italy	11,575	11,883	12,185	12,560	12,236	17.1	20.6	22.7	23.7	19.0	198,307	244,415	276,922	297,987	232,687
Switzerland	112	135	137	140		30.9	30.0	29.2	34.3		3,457	4,045	4,001	4,799	5,071
Germany	3,613	5,355	5,635	5,727	5,430	27.3	29.0	32.6	36.0	30.7	98,714	155,546	183,830	205,920	166,541
Austria	471	517	534	543	568	18.5	21.3	22.8	26.9	23.3	8,703	11,009	12,193	14,616	13,239
Czechoslovakia	1,523	2,047	2,064	2,272	2,301	23.6	20.1	26.0	32.1	21.7	36,015	41,232	53,737	72,921	50,013
Hungary	3,345	4,011	3,793	3,924	3,921	17.8	18.1	17.0	24.6	15.7	59,678	72,550	64,463	96,356	61,447
Yugoslavia	3,953	5,289	4,820	5,256	5,002	14.9	18.7	11.1	18.4	13.7	58,753	98,789	53,444	96,584	68,328
Greece	1,075	1,496	1,500	1,712	1,951	8.8	7.5	11.4	16.6	16.1	9,417	11,228	17,067	28,385	31,359
Bulgaria	2,390	3,053	3,121	3,097	3,089	13.1	20.9	15.4	17.9	13.5	31,399	63,831	48,125	55,454	41,578
Rumania	7,068	8,566	7,091	7,700	7,637	12.7	15.8	7.8	15.5	10.1	89,570	135,300	55,537	119,072	77,315
Poland	2,957	4,495	4,265	4,187	4,385	16.5	18.5	11.6	19.1	14.5	48,708	83,220	49,472	79,883	63,468
Lithuania	214	478	509	499	514	16.6	17.4	18.5	16.4	19.3	3,563	8,335	9,423	8,192	9,907
Latvia	89	215	255	309	351	16.0	15.8	20.8	21.8	23.1	1,426	3,388	5,292	6,725	8,091
Estonia	47	99	128	155	161	14.2	17.6	16.3	15.8	19.2	667	1,738	2,085	2,450	3,086
Finland	36	45	59	91	104	20.5	24.9	25.1	27.0	27.1	739	1,121	1,483	2,460	2,822

U.S.S.R. European and Asiatic	43,137	91,110	85,259	82,138	----------	10.6	8.3	8.7	12.4	----------	457,857	753,238	744,052	1,018,893	----------
Estimated European total, excluding U.S.S.R.	66,400	76,000	75,400	78,000	77,300	----------	----------	----------	----------	----------	1,196,000	1,436,000	1,492,000	1,748,000	1,520,000
Africa:															
Morocco	2,272	2,537	2,713	3,210	2,817	9.6	11.7	10.3	9.0	11.1	21,758	29,783	27,970	28,902	31,232
Algeria	3,406	3,640	3,736	3,993	4,005	7.8	7.0	7.8	8.0	9.9	26,716	25,649	29,237	31,998	39,738
Tunis	1,400	1,977	2,392	1,754	1,903	5.6	7.1	7.3	5.2	8.3	7,892	13,963	17,453	9,186	15,800
Egypt	1,462	1,649	1,762	1,426	1,441	25.2	27.9	29.8	28.0	25.9	36,806	46,073	52,586	39,951	37,277
Asia:															
Turkey	[2] 7,058	8,772	8,555	7,257	6,871	[2] 5.6	12.0	8.3	13.7	12.9	[2] 39,510	104,946	71,135	99,636	88,546
India	29,561	32,189	33,803	32,970	36,062	11.4	10.8	10.0	10.7	9.7	336,276	347,424	336,896	352,763	349,365
Japanese Empire:															
Japan	1,197	1,228	1,247	1,509	1,587	22.5	25.2	25.1	26.8	28.7	26,899	30,892	31,336	40,376	45,557
Chosen	882	817	793	790	798	11.6	10.2	10.8	11.2	11.1	10,208	8,341	8,576	8,887	8,863
Taiwan	7	1	2	----------	----------	9.1	18.0	12.0	----------	----------	64	18	24	----------	----------
Kwantung	4	4	3	----------	----------	11.8	13.2	17.7	----------	----------	47	53	53	----------	----------
Estimated Asiatic total, excluding U.S.S.R. and China	38,600	45,300	46,500	44,700	47,500	----------	----------	----------	----------	----------	437,000	555,000	471,000	527,000	521,000
Estimated Northern Hemisphere total, excluding U.S.S.R. and China	195,500	216,000	218,000	208,200	202,500	----------	----------	----------	----------	----------	2,891,000	3,380,000	3,292,000	3,199,000	2,951,000
SOUTHERN HEMISPHERE															
Chile	1,446	1,517	1,466	2,103	2,167	17.8	14.0	17.8	16.8	----------	25,761	21,187	26,114	35,307	----------
Uruguay	867	1,080	947	1,189	997	11.2	10.4	5.7	12.3	----------	9,680	11,259	5,407	14,674	----------
Argentina	16,159	16,028	17,789	18,041	17,198	12.6	13.7	13.5	15.9	14.7	203,388	219,696	240,889	286,120	252,059
Union of South Africa	868	1,736	1,556	1,257	1,523	8.6	7.9	6.8	8.1	8.9	7,459	13,713	10,627	10,227	13,533
Australia	10,010	14,741	15,766	14,992	12,965	12.8	12.9	13.6	11.7	10.6	128,520	190,612	213,927	175,370	137,000
New Zealand	224	269	303	295	229	29.6	24.5	36.5	30.6	----------	6,640	6,583	11,055	9,036	----------
Estimated Southern Hemisphere total	31,000	37,500	40,700	40,400	37,200	----------	----------	----------	----------	----------	390,000	474,000	519,000	542,000	472,000
Estimated world total, excluding U.S.S.R. and China	226,500	253,500	258,700	248,600	239,700	----------	----------	----------	----------	----------	3,281,000	3,854,000	3,811,000	3,741,000	3,423,000

[1] Preliminary.
[2] Year 1925.

Bureau of Agricultural Economics. Official sources and International Institute of Agriculture. "U.S.S.R." means Union of Soviet Socialist Republics.
Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 8.—*Wheat: Production, world and selected countries, 1890–91 to 1934–35*

Crop year	World, excluding Russia and China	Northern Hemisphere, excluding Russia and China	Europe, excluding Russia	Selected countries						
				Russia [1]	United States	Canada	India	Argentina	Australia	France
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1890–91	2,018	1,944	1,082	212	449	42	229	31	27	330
1891–92	2,152	2,066	946	173	678	42	257	36	26	215
1892–93	2,226	2,108	1,084	255	612	48	227	59	33	311
1893–94	2,180	2,034	1,073	375	506	41	286	82	37	278
1894–95	2,231	2,120	1,110	355	542	43	271	61	28	344
1895–96	2,172	2,086	1,098	310	542	41	261	46	18	340
1896–97	2,124	2,054	1,151	412	523	33	201	32	21	340
1897–98	1,968	1,866	874	340	606	47	200	53	28	242
1898–99	2,632	2,452	1,209	459	768	63	269	105	41	365
1899–1900	2,416	2,246	1,147	454	655	57	255	102	40	365
1900–1901	2,297	2,151	1,134	423	599	56	200	75	48	326
1901–2	2,516	2,398	1,135	428	763	85	265	56	39	311
1902–3	2,537	2,394	1,240	607	687	94	227	104	12	328
1903–4	2,739	2,498	1,305	621	663	78	298	130	74	363
1904–5	2,529	2,293	1,154	667	556	69	360	151	55	300
1905–6	2,754	2,519	1,266	636	706	106	283	135	69	335
1906–7	3,026	2,771	1,398	543	741	126	320	156	66	329
1907–8	2,694	2,419	1,205	571	629	93	317	192	45	381
1908–9	2,618	2,357	1,204	628	643	112	229	156	63	317
1909–10	2,860	2,593	1,263	846	684	167	285	131	90	359
1910–11	2,815	2,533	1,218	836	625	132	360	146	95	253
1911–12	3,087	2,801	1,366	563	618	231	376	166	72	322
1912–13	3,140	2,817	1,307	801	730	224	371	187	92	334
1913–14	3,129	2,882	1,322	1,028	751	232	368	105	103	319
1914–15	2,884	2,649	1,096	[2] 834	897	161	312	169	25	283
1915–16	3,520	3,124	1,151	[3] 827	1,009	394	377	169	179	223
1916–17	2,717	2,436	1,020	[4] 531	635	263	323	84	152	205
1917–18	2,693	2,285	865	622	620	234	382	235	115	[5] 135
1918–19	2,935	2,631	959	--------	904	189	370	180	76	229
1919–20	2,809	2,504	900	--------	952	193	280	217	46	187
1920–21	2,968	2,612	949	320	843	263	378	156	146	237
1921–22	3,179	2,797	1,224	205	819	301	250	191	129	323
1922–23	3,203	2,845	1,045	389	847	400	367	196	109	243
1923–24	3,519	3,087	1,257	451	759	474	372	248	125	276
1924–25	3,126	2,715	1,058	480	840	262	361	191	165	281
1925–26	3,380	3,013	1,397	764	669	395	331	191	115	330
1926–27	3,495	3,045	1,216	898	834	407	325	230	161	232
1927–28	3,673	3,200	1,274	792	875	480	335	282	118	276
1928–29	3,995	3,419	1,410	807	913	567	291	349	160	281
1929–30	3,573	3,206	1,451	694	822	305	321	163	127	337
1930–31	3,850	3,347	1,360	989	890	421	391	232	214	228
1931–32	3,854	3,380	1,436	753	932	321	347	220	191	264
1932–33	3,811	3,292	1,492	744	746	443	337	241	214	334
1933–34	3,741	3,199	1,748	1,019	529	270	353	286	175	362
1934–35 [6]	3,423	2,951	1,520	--------	496	275	349	252	137	332

[1] Includes all Russian territory reporting for years named.
[2] Total Russian Empire exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and Ukraine, and 2 Provinces of Transcaucasia.
[4] Beginning with this date estimated production is within present boundaries of the Union of Soviet Socialist Republics, excluding Turkestan, Transcaucasia, and the Far East, which regions in 1924 produced 51,706,000 bushels and, in 1925, 58,000,000 bushels.
[5] Beginning with this date production is within post-war boundaries and therefore not comparable with earlier years.
[6] Preliminary.

Bureau of Agricultural Economics.

Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 9.—*Wheat: Stocks on farms, quarterly, United States, 1925–26 to 1934–35*

Season	Stocks on farms				Season	Stocks on farms			
	Oct. 1	Jan. 1	Apr. 1	July 1[1]		Oct. 1	Jan. 1	Apr. 1	July 1[1]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*		*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1925–26			79, 050	27, 104	1930–31	400, 026	258, 949	118, 772	38, 039
1926–27	370, 310	216, 825	103, 871	26, 743	1931–32	498, 383	322, 517	169, 990	92, 772
1927–28	378, 871	209, 858	88, 057	19, 567	1932–33	415, 760	273, 012	183, 185	82, 309
1928–29	449, 013	268, 332	134, 114	44, 979	1933–34	310, 354	196, 508	116, 298	60, 323
1929–30	344, 009	221, 974	130, 729	60, 092	1934–35	230, 912	136, 044	93, 699	-------

[1] Includes old crop only.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 10.—*Wheat: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1924–25 to 1933–34*

Season	Percentage of receipts during—													
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
1924–25	2. 1	12. 9	20. 8	17. 8	14. 0	7. 8	5. 6	5. 3	4. 2	2. 5	1. 7	3. 3	2. 0	100. 0
1925–26	2. 3	14. 0	18. 2	18. 2	11. 2	9. 0	7. 2	4. 8	4. 1	3. 0	3. 0	2. 9	2. 1	100. 0
1926–27	1. 7	22. 2	20. 6	13. 5	9. 5	5. 9	5. 1	4. 6	4. 7	3. 7	2. 7	3. 5	2. 3	100. 0
1927–28	2. 7	15. 0	18. 0	19. 8	12. 6	7. 8	5. 3	4. 5	4. 0	3. 8	2. 5	2. 7	1. 3	100. 0
1928–29	1. 3	19. 0	18. 3	17. 2	12. 0	7. 2	5. 4	4. 2	4. 3	3. 5	2. 8	2. 7	2. 1	100. 0
1929–30	5. 1	25. 5	22. 3	14. 0	8. 6	4. 8	4. 5	3. 1	2. 9	2. 5	2. 5	2. 6	1. 6	100. 0
1930–31	3. 9	25. 2	21. 0	12. 3	7. 1	4. 5	4. 7	4. 7	4. 7	3. 5	3. 1	3. 9	1. 4	100. 0
1931–32	6. 0	27. 6	18. 5	9. 5	7. 5	4. 3	4. 4	4. 0	5. 8	3. 4	3. 5	4. 0	1. 5	100. 0
1932–33	4. 8	18. 7	19. 6	14. 0	7. 8	5. 5	4. 8	3. 6	3. 4	3. 4	4. 3	5. 4	4. 7	100. 0
1933–34	9. 0	21. 5	20. 4	13. 8	7. 0	5. 0	3. 6	3. 6	3. 3	3. 4	2. 7	3. 0	3. 7	100. 0

Bureau of Agricultural Economics.

TABLE 11.—*Wheat: Production and farm disposition, United States, 1919–20 to 1934–35*

Season	Production	Used for seed		Fed to livestock [1]	Ground at mills for home use or exchanged for flour [1]	Sold or for sale
		Total	Home grown [1]			
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919–20	952, 097	90, 858	89, 402	36, 606	14, 136	811, 953
1920–21	843, 277	89, 269	87, 735	20, 611	11, 725	723, 206
1921–22	818, 964	88, 322	87, 845	32, 744	11, 358	687, 017
1922–23	846, 649	85, 140	83, 454	49, 357	11, 140	702, 698
1923–24	759, 482	73, 544	71, 806	66, 857	10, 840	609, 979
1924–25	840, 091	81, 278	80, 393	55, 855	10, 553	693, 290
1925–26	669, 142	79, 540	75, 625	28, 248	10, 487	554, 782
1926–27	833, 544	85, 065	82, 971	34, 383	10, 344	705, 846
1927–28	874, 733	91, 416	88, 878	44, 461	9, 286	732, 108
1928–29	912, 961	84, 577	82, 421	55, 113	8, 196	767, 231
1929–30	822, 180	83, 930	83, 244	59, 152	6, 973	672, 811
1930–31	889, 702	81, 060	80, 318	157, 517	10, 538	641, 329
1931–32	932, 221	80, 098	77, 292	171, 258	14, 917	668, 754
1932–33	745, 788	83, 635	79, 412	122, 493	15, 724	528, 159
1933–34	528, 975	71, 703	68, 214	69, 625	15, 442	375, 694
1934–35 [2]	496, 469	75, 476	68, 156	81, 373	14, 876	332, 064

[1] Relates to quantities used by producers on their own farms. Additional quantities of purchased wheat are so utilized.

[2] Preliminary. Disposition items are approximations made in March 1935.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 12.—*Wheat: United States production, 1928–29 to 1934–35, and exports by classes, 1924–25 to 1933–34*

ESTIMATED PRODUCTION

Year beginning July	Hard red spring	Durum	Hard red winter	Soft red winter	White [1]	Flour as wheat	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1928–29	202,128	97,766	392,155	128,345	92,567	----------	912,961
1929–30	144,712	56,307	370,390	166,430	84,341	----------	822,180
1930–31	160,594	59,191	403,363	178,794	87,760	----------	889,702
1931–32	70,376	21,266	515,925	254,480	70,174	----------	932,221
1932–33	191,331	41,607	280,245	149,567	83,038	----------	745,788
1933–34	108,834	18,071	168,738	147,689	85,643	----------	528,975
1934–35	53,791	7,561	201,292	168,224	65,601	----------	496,469

ESTIMATED EXPORTS OF DOMESTIC WHEAT AND FLOUR [2]

1924–25	21,567	33,816	120,573	8,333	11,201	65,313	260,803
1925–26	4,958	26,834	9,677	2,563	19,157	44,846	108,035
1926–27	2,174	21,970	73,123	31,352	27,631	62,910	219,160
1927–28	6,000	36,500	60,299	12,800	30,400	60,260	206,259
1928–29	2,200	47,500	35,014	3,000	15,400	60,573	163,687
1929–30	1,900	14,800	54,375	2,700	18,400	61,070	153,245
1930–31	600	12,100	47,365	2,600	13,700	55,110	131,475
1931–32	100	4,700	75,521	2,200	14,000	39,276	135,797
1932–33	----------	1,700	16,987	----------	2,200	20,324	41,211
1933–34	----------	----------	1,400	----------	17,399	18,202	37,001

[1] White wheat in Pacific Northwest region consists of both spring and winter wheat; no attempt has been made to classify this wheat as other than white wheat, part of which is spring and part winter.

[2] Computed from total exports by customs districts on the basis of inspections of wheat for export by ports and classes in the United States and Canadian Eastern Grain Division.

Bureau of Agricultural Economics.

Estimated production by classes based on questionnaire surveys of local authorities, supplemented by judgment of cereal specialists. Inspection of United States wheat for export data furnished monthly by Federal grain supervision officers at the export markets. Inspections are made at the ports of export. Export figures from reports of the Bureau of Foreign and Domestic Commerce.

TABLE 13.—*Wheat and wheat including flour in terms of grain: Exports from the United States, by months, 1924–25 to 1933–34*

WHEAT, GRAIN

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1924–25	4,048	16,835	32,662	45,128	27,831	17,791	8,484	7,387	9,960	8,424	9,870	7,070	195,490
1925–26	5,295	7,901	9,391	4,354	4,696	3,695	2,412	1,700	3,770	2,533	9,368	8,074	63,189
1926–27	16,091	29,075	23,700	17,589	14,340	9,622	8,078	4,889	5,084	11,363	8,960	7,459	156,250
1927–28	8,397	23,418	33,776	29,236	20,731	6,917	5,956	2,276	2,740	2,723	4,823	5,006	145,999
1928–29	4,153	10,374	17,979	22,058	10,562	7,641	3,399	3,214	3,487	3,942	11,741	4,564	103,114
1929–30	8,691	12,094	13,104	8,767	9,977	7,149	8,245	5,185	2,414	3,050	5,433	8,066	92,175
1930–31	11,934	18,646	12,716	6,105	3,266	2,713	1,290	137	1,397	3,531	6,494	8,136	76,365
1931–32	12,731	8,911	8,397	11,873	9,519	7,896	4,072	4,650	5,749	9,351	7,284	6,088	96,521
1932–33	3,208	3,899	2,479	2,656	3,714	1,729	1,793	729	456	194	14	16	20,887
1933–34 [1]	29	21	43	24	512	4,152	2,867	2,667	3,065	3,576	1,456	387	18,799

WHEAT, INCLUDING FLOUR IN TERMS OF GRAIN

1924–25	7,758	21,295	39,537	53,834	35,425	24,616	13,126	11,784	16,480	12,912	13,114	10,922	260,803
1925–26	8,944	12,007	13,152	9,113	8,794	8,437	5,587	4,742	7,039	6,452	12,558	11,210	108,035
1926–27	19,819	35,479	31,031	24,098	20,655	15,301	12,821	8,997	9,183	16,138	14,123	11,515	219,160
1927–28	12,100	28,361	39,792	36,347	27,003	12,197	11,809	6,725	7,492	7,410	8,793	8,230	206,259
1928–29	7,193	14,754	22,772	28,567	16,195	12,053	9,833	8,948	9,090	9,151	16,128	9,003	163,687
1929–30	13,784	17,338	18,568	14,922	15,155	12,428	14,073	9,535	7,321	7,438	10,208	12,475	153,245
1930–31	16,377	24,413	19,352	12,355	8,701	6,906	5,731	3,717	4,757	7,107	10,203	11,856	131,475
1931–32	17,454	11,919	11,729	15,563	13,550	12,100	8,134	7,995	8,554	11,882	8,831	8,086	135,797
1932–33	4,841	5,613	4,226	4,422	5,985	3,549	3,313	2,175	2,105	1,754	1,523	1,705	41,211
1933–34 [1]	1,391	1,721	1,530	1,490	1,930	5,975	4,570	4,039	4,733	5,482	2,725	1,415	37,001

[1] Preliminary.

Bureau of Agricultural Economics; compiled from Monthly Summary of Foreign Commerce of the United States.

The following factor has been used for converting flour into terms of wheat: 1 barrel of flour = the product of 4.7 bushels of grain.

TABLE 14.—*Wheat: Receipts inspected, all inspection points, United States, by months, 1925–26 to 1934–35*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1925–26	74, 414	79, 444	89, 240	51, 953	60, 289	55, 907	33, 716	31, 781	27, 681	26, 634	30, 733	46, 151	607, 943
1926–27	168, 040	142, 833	96, 534	72, 182	55, 067	44, 757	45, 154	47, 062	42, 770	37, 169	43, 077	46, 321	840, 966
1927–28	111, 097	127, 877	136, 744	112, 361	79, 464	53, 284	46, 724	43, 395	47, 274	33, 426	41, 124	26, 480	859, 250
1928–29	161, 267	139, 714	127, 237	130, 017	81, 352	68, 185	46, 115	53, 800	49, 912	34, 910	40, 499	56, 723	989, 731
1929–30	234, 335	171, 098	92, 048	64, 384	36, 369	45, 790	32, 973	40, 215	28, 723	25, 327	34, 265	62, 466	867, 993
1930–31	221, 083	153, 923	95, 619	54, 806	38, 532	44, 049	53, 826	52, 491	48, 072	37, 020	52, 869	62, 660	914, 950
1931–32	219, 167	114, 427	69, 868	64, 505	49, 838	33, 840	38, 989	55, 105	27, 238	28, 809	34, 642	37, 980	774, 408
1932–33	112, 764	85, 520	71, 789	46, 244	32, 003	28, 071	25, 477	19, 592	22, 970	30, 539	45, 232	66, 641	586, 842
1933–34	94, 212	52, 980	42, 772	30, 183	26, 925	24, 338	24, 824	24, 591	24, 327	20, 564	23, 680	73, 381	462, 777
1934–35	113, 524	62, 722	40, 054	26, 660	20, 997	18, 872							

Bureau of Agricultural Economics. Compiled from reports of licensed inspectors through district offices of Federal grain inspection. The quantity loaded per car varies, but car-lot receipts have been converted to bushels by using conversion factors for crop years as follows: 1925–26, 1,368; 1926–27, 1,380; 1927–28, 1,399; 1928–29, 1,441; 1929–30, 1,455; 1930–31, 1,477; 1931–32, 1,485; 1932–33, 1,479; 1933–34 and 1934–35, 1,500 bushels per car, respectively.

TABLE 15.—*Wheat: Receipts inspected, all inspection points, United States, by classes and grades, 1929–30 to 1933–34*

Class and year beginning July	Grade						Total
	No. 1	No. 2	No. 3	No. 4	No. 5	Sample	
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Hard red spring:							
1929–30	85, 142	27, 409	14, 971	3, 088	1, 097	6, 270	137, 977
1930–31	87, 418	29, 508	30, 859	10, 742	2, 893	1, 059	162, 479
1931–32	20, 809	10, 508	10, 428	3, 130	1, 579	603	47, 057
1932–33	61, 985	29, 349	29, 096	5, 496	1, 167	808	127, 901
1933–34	62, 685	14, 237	11, 728	2, 208	1, 002	952	92, 812
Durum:							
1929–30	4, 858	22, 676	4, 707	2, 120	1, 409	985	36, 755
1930–31	8, 516	32, 562	4, 616	1, 663	579	349	48, 285
1931–32	1, 286	8, 503	1, 298	374	153	73	11, 687
1932–33	3, 235	11, 740	1, 534	413	180	86	17, 188
1933–34	3, 585	7, 295	306	72	66	172	11, 496
Hard red winter:							
1929–30	110, 932	226, 191	123, 928	38, 070	12, 865	14, 575	526, 561
1930–31	237, 604	193, 528	51, 537	22, 161	12, 027	7, 957	524, 814
1931–32	261, 155	229, 722	52, 195	12, 859	9, 942	7, 135	573, 008
1932–33	96, 125	145, 624	45, 710	13, 687	10, 437	6, 542	318, 125
1933–34	81, 954	85, 604	20, 421	4, 378	5, 034	4, 719	202, 110
Soft red winter:							
1929–30	5, 522	28, 879	22, 013	4, 596	1, 085	1, 913	64, 008
1930–31	40, 728	14, 358	2, 758	693	445	449	59, 431
1931–32	17, 870	38, 357	12, 994	3, 533	1, 414	1, 488	75, 656
1932–33	14, 385	26, 156	5, 648	1, 056	1, 275	1, 254	49, 774
1933–34	13, 849	32, 564	6, 982	1, 445	870	1, 051	56, 761
White:							
1929–30	14, 659	25, 502	4, 105	538	147	387	45, 338
1930–31	13, 391	29, 668	5, 819	645	148	235	49, 906
1931–32	13, 632	21, 273	5, 267	491	94	94	40, 851
1932–33	8, 192	17, 177	6, 877	1, 239	284	371	34, 140
1933–34	11, 172	35, 670	11, 811	1, 650	258	484	61, 045
Mixed:							
1929–30	12, 520	23, 153	12, 820	4, 381	2, 324	2, 156	57, 354
1930–31	25, 100	26, 800	9, 702	5, 206	2, 034	1, 193	70, 035
1931–32	9, 670	10, 042	4, 581	992	563	301	26, 149
1932–33	10, 613	19, 103	6, 337	1, 707	1, 229	725	39, 714
1933–34	14, 198	17, 246	4, 533	844	794	938	38, 553
Total:							
1929–30	233, 633	353, 810	182, 544	52, 793	18, 927	26, 286	867, 993
1930–31	412, 757	326, 424	105, 291	41, 110	18, 126	11, 242	914, 950
1931–32	324, 422	318, 405	86, 763	21, 379	13, 745	9, 694	774, 408
1932–33	194, 535	249, 149	95, 202	23, 598	14, 572	9, 786	586, 842
1933–34	187, 443	192, 616	55, 781	10, 597	8, 024	8, 316	462, 777

Bureau of Agricultural Economics. Compiled from reports of licensed inspectors through district offices of Federal grain inspection. See 1927 Yearbook, table 15, and 1928 Yearbook, table 15, for data for earlier years. The quantity loaded per car varies, but car-lot receipts have been converted to bushels by using the following conversion factors: 1929–30, 1,455; 1930–31, 1,477; 1931–32, 1,485; 1932–33, 1,479; and 1933–34, 1,500 bushels per car, respectively.

TABLE 16.—*Wheat: Commercial stocks, 1926–27 to 1934–35*

DOMESTIC WHEAT IN UNITED STATES [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27							66,340	56,304	56,262	49,910	37,667	26,553
1927–28	21,052	33,677	62,042	78,811	89,684	91,589	88,581	78,203	72,858	68,791	61,957	48,286
1928–29	38,587	63,133	93,870	115,469	139,493	140,172	144,351	129,646	126,377	124,756	113,392	96,059
1929–30	90,442	136,423	186,847	198,211	202,461	189,926	182,226	168,346	160,674	153,122	135,471	120,303
1930–31	109,327	161,897	201,319	220,600	211,381	206,618	199,649	202,694	208,651	213,583	206,490	209,110
1931–32	203,967	235,727	261,742	256,327	244,043	236,616	226,874	217,719	216,282	207,215	186,549	176,237
1932–33	168,405	175,918	188,342	194,858	191,829	176,428	168,465	155,552	147,132	135,552	124,395	117,536
1933–34	123,712	134,946	151,738	156,652	151,294	142,187	132,511	116,472	107,233	97,132	88,821	78,967
1934–35	80,548	115,922	122,380	120,075	108,518	99,158						

UNITED STATES WHEAT IN CANADA [2]

1926–27							1,067	549	437	378	746	1,344
1927–28	1,362	1,280	4,249	4,560	7,258	5,156	3,933	2,285	1,680	977	863	2,314
1928–29	2,506	2,258	2,546	3,295	8,602	8,280	7,328	3,930	2,139	1,586	1,738	4,865
1929–30	3,332	2,288	4,450	8,658	9,065	9,101	8,161	7,517	6,613	5,860	5,431	4,359
1930–31	4,729	3,961	3,812	5,578	4,756	4,790	4,819	4,802	4,951	5,254	5,897	7,851
1931–32	15,347	22,934	32,236	32,511	31,627	29,414	29,153	28,652	27,682	27,578	26,872	17,481
1932–33	15,895	15,364	11,334	8,503	7,728	7,000	6,938	6,742	6,554	6,403	5,384	4,782
1933–34	4,047	3,740	3,672	3,114	2,656	2,251	2,249	2,249	2,235	2,229	2,228	
1934–35				849	1,049	1,049						

CANADIAN WHEAT IN CANADA [3]

1926–27							101,309	107,835	110,602	102,223	67,856	51,744
1927–28	38,974	36,524	21,706	28,909	61,831	92,487	122,678	136,938	139,028	131,334	121,195	98,041
1928–29	82,781	51,882	26,964	85,804	140,441	149,054	179,805	176,196	169,379	164,429	133,397	115,126
1929–30	94,939	82,766	81,348	145,739	188,009	187,784	191,139	184,834	178,689	170,688	157,912	128,020
1930–31	110,202	86,463	84,287	140,943	167,287	177,000	185,017	175,741	172,699	169,407	153,088	126,601
1931–32	107,861	105,193	96,449	114,866	152,863	169,088	172,631	173,593	171,191	170,447	159,982	138,616
1932–33	134,040	116,767	110,818	187,252	225,518	221,997	223,816	219,866	215,785	219,537	217,309	196,382
1933–34	194,776	189,926	194,055	220,467	241,245	228,601	227,645	224,015	221,065	218,327	207,355	195,231
1934–35	181,589	177,623	183,706	214,173	236,969	231,152						

CANADIAN WHEAT IN UNITED STATES [4]

1926–27							23,394	14,500	9,532	6,650	10,724	14,466
1927–28	7,472	4,835	3,410	3,784	8,617	31,375	35,764	25,649	19,260	11,848	6,597	11,549
1928–29	11,132	13,610	3,789	7,548	18,291	33,902	46,717	38,327	32,851	23,854	28,772	25,538
1929–30	23,196	23,550	22,025	21,753	28,316	34,527	38,000	35,517	31,516	25,285	17,587	14,372
1930–31	16,435	16,468	12,603	17,765	22,112	30,297	32,266	26,954	18,085	11,554	2,766	5,926
1931–32	6,021	6,244	6,227	9,116	12,596	23,480	25,212	21,905	14,589	11,426	4,619	5,958
1932–33	4,532	4,707	5,581	10,988	13,917	15,197	13,575	10,996	7,792	5,992	2,497	4,609
1933–34	4,337	6,697	4,785	5,752	10,016	14,767	14,038	9,798	9,171	5,653	1,519	5,253
1934–35	10,121	9,727	10,103	14,221	17,576	23,569						

[1] Includes domestic wheat in store in public and private elevators in 41 markets and wheat afloat in vessels or barges in harbors of lake and seaboard ports. Does not include wheat in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of wheat intended for local use.

[2] Includes United States wheat in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include wheat in transit to Canadian ports.

[3] Includes practically all Canadian wheat held within Canadian boundaries, exclusive of farm and certain mill stocks.

[4] Includes Canadian wheat in store and afloat at 10 United States lake and seaboard ports but not Canadian wheat in transit on lakes or canals.

Bureau of Agricultural Economics. Compiled from weekly reports to the grain, hay, and feed market news service. Data for domestic and Canadian wheat in United States are for stocks on the Saturday nearest the 1st day of the month; for Canadian and United States wheat in Canada data are for stocks on the Friday nearest the 1st day of the month.

TABLE 17.—*Wheat, including flour: Supply, distribution, and disappearance in continental United States, 1919–20 to 1934–35*

Crop year beginning July	Supply									
	Stocks July 1							New crop [1]	Imports (flour included) [2]	Total supply
	On farms [1]	In country elevators and mills [2]	Commercial stocks [3]	In merchant mills and elevators and stored for others [4]	In transit to merchant mills and bought to arrive [4]	Total wheat as grain	Flour in terms of wheat [5]			
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919–20	18,756	19,672	10,873	21,000	6,400	76,701	7,402	952,097	5,511	1,041,711
1920–21	48,677	37,304	23,404	26,000	9,500	144,885	10,502	843,277	57,682	1,056,346
1921–22	57,063	27,167	9,966	22,000	10,600	126,796	6,947	818,964	17,375	970,082
1922–23	32,519	28,756	20,342	25,000	7,700	114,317	7,793	846,649	20,031	988,790
1923–24	35,239	37,117	29,403	28,000	7,200	136,959	10,495	759,482	28,079	935,015
1924–25	29,349	36,626	38,597	30,000	9,800	144,372	9,616	840,091	6,201	1,000,280
1925–26	28,638	25,287	29,285	22,576	9,000	114,786	8,530	669,142	15,679	808,137
1926–27	27,104	29,501	16,486	24,505	7,350	104,946	9,757	833,544	13,264	961,511
1927–28	26,743	21,776	25,516	37,038	11,274	122,347	9,076	874,733	15,734	1,021,890
1928–29	19,567	19,277	42,208	31,920	10,893	123,865	9,019	912,961	21,442	1,067,287
1929–30	44,979	41,546	95,684	48,279	16,237	246,725	13,541	822,180	12,956	1,095,402
1930–31	60,092	60,166	109,327	59,170	14,706	303,461	20,497	889,702	19,366	1,233,026
1931–32	38,039	30,252	203,967	41,206	12,496	325,960	6,886	932,221	12,886	1,277,953
1932–33	92,772	41,585	168,405	71,714	10,088	384,564	7,041	745,788	9,382	1,146,775
1933–34	82,309	64,296	123,596	107,052	16,038	393,291	7,214	528,975	11,494	940,974
1934–35	60,323	51,060	80,548	83,114	14,066	289,111	6,688	496,469	----------	----------

Crop year beginning July	Distribution									
	Exports and shipments				Seed requirements [7]	Disappearance for food, feed, and loss	Carryover (including flour) June 30 [8]	Population Jan. 1 [9]	Per capita disappearance	
	Exports (wheat only) [6]	Exports flour in terms of wheat [6]	Reexports and shipments (flour included) [6]	Total					Wheat for food, feed, and loss	Flour in terms of wheat
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Thousands*	*Bushels*	*Bushels*
1919–20	122,431	99,599	3,130	225,160	90,172	570,992	155,387	105,711	5.40	----------
1920–21	293,268	76,045	3,690	373,003	88,408	461,192	133,743	107,375	4.30	----------
1921–22	208,321	74,245	3,087	285,653	88,322	473,997	122,110	109,040	4.35	----------
1922–23	154,951	69,949	3,117	228,017	84,432	528,887	147,454	110,705	4.78	----------
1923–24	78,793	81,087	3,064	162,944	73,514	544,569	153,988	112,370	4.85	4.26
1924–25	195,490	65,313	2,964	263,767	80,951	532,246	123,316	114,035	4.67	4.30
1925–26	63,189	44,846	3,054	111,089	79,540	502,805	114,703	115,700	4.40	4.32
1926–27	156,250	62,910	3,180	222,340	85,065	522,683	131,423	117,364	4.45	4.32
1927–28	145,999	60,260	2,743	209,002	91,416	588,588	132,884	119,029	4.94	4.25
1928–29	103,114	60,573	3,227	166,914	84,577	555,530	260,266	120,694	4.60	4.26
1929–30	92,175	61,070	3,049	156,294	83,930	543,720	311,458	122,359	4.44	4.15
1930–31	76,365	55,110	2,870	134,345	81,060	684,775	332,846	123,630	5.54	4.21
1931–32	96,521	39,276	3,661	139,458	80,098	666,792	391,605	124,511	5.36	4.05
1932–33	20,887	20,324	3,479	44,690	82,922	618,658	400,505	125,197	4.94	4.16
1933–34	18,799	18,202	2,800	39,801	76,181	529,193	295,799	126,059	4.20	3.79

[1] Based on returns to the Bureau from crop reporters.
[2] Based on returns from about 3,500 country mills and elevators.
[3] From Bradstreets, 1919–20 to 1929–30; Bureau of Agricultural Economics, 1930–31 to end of table.
[4] 1919–20 to 1924–25, estimates in absence of actual figures; 1925–26 to date, Bureau of the Census figures, raised to represent all merchant mills. Stocks stored for others included beginning July 1930.
[5] From Chicago Daily Trade Bulletin.
[6] From Reports of Foreign and Domestic Commerce of the United States; shipments are to Alaska, Hawaii, and Puerto Rico.
[7] Amount of seed used per acre from returns to the Bureau from inquiries sent to crop reporters.
[8] For individual items see supply section.
[9] Bureau of the Census.

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TABLE 18.—*Wheat: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	140.3	150.4	144.4	136.4	148.8	153.7	158.1	155.5	146.0	142.2	142.1	138.9	143.7
1926–27	127.7	125.1	117.7	121.4	123.6	122.8	122.2	122.8	120.9	117.2	123.2	130.1	121.7
1927–28	127.3	123.5	119.2	113.7	111.4	113.9	115.2	116.2	121.6	129.2	144.3	132.0	119.0
1928–29	118.1	95.2	94.4	98.7	97.1	98.2	98.5	104.2	104.7	99.8	90.1	86.8	99.8
1929–30	102.4	110.7	112.1	111.5	103.4	108.1	107.5	101.3	91.9	93.4	87.5	87.9	103.4
1930–31	70.6	74.0	70.3	65.6	60.0	61.3	59.1	58.7	58.3	59.2	59.9	51.9	67.0
1931–32	36.3	35.4	35.7	36.1	50.5	44.1	44.1	44.0	44.2	43.1	42.4	37.3	39.0
1932–33	35.6	38.5	37.4	34.6	32.8	31.6	32.9	32.3	34.5	44.8	59.0	58.7	37.9
1933–34	86.9	74.7	71.1	63.6	71.1	67.3	69.4	72.0	70.9	68.7	69.5	78.9	74.1
1934–35	78.8	89.6	92.2	88.5	88.1	90.6	------	------	------	------	------	------	[1] 88.0

[1] Preliminary.

Bureau of Agricultural Economics; based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 21. Only monthly prices are comparable.

TABLE 19.—*Wheat: Average price per bushel of specified grades at markets named, 1900–1901 to 1933–34*

Crop year beginning July—	No. 1 Northern Spring at Minneapolis	No. 2 Amber Durum at Minneapolis	No. 2 Hard Winter at Chicago	No. 2 Hard Winter at Kansas City	No. 2 Red Winter at St. Louis	No. 2 Hard Winter at New York [1]	Imported red at Liverpool [2]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1900–1901	75	----------	72	67	74	84	87
1901–2	72	----------	71	68	72	82	87
1902–3	74	----------	73	68	71	85	89
1903–4	89	69	81	77	87	98	90
1904–5	113	92	101	97	103	120	[3] 95
1905–6	84	70	86	80	90	96	[4] 98
1906–7	83	64	76	72	76	92	93
1907–8	107	85	96	93	94	116	110
1908–9	111	95	100	99	104	122	120
1909–10	109	90	109	107	113	120	120
1910–11	105	87	100	98	99	104	107
1911–12	107	98	94	97	94	110	112
1912–13	87	85	94	88	105	103	114
1913–14	88	83	89	84	89	99	106
1914–15	120	122	111	105	110	136	157
1915–16	109	104	114	119	120	128	175
1916–17	176	180	157	71	163	208	224
1917–18	220	218	228	252	223	240	235
1918–19	225	222	234	219	223	237	240
1919–20	272	249	227	242	230	255	215
1920–21	207	200	216	183	213	210	223
1921–22	143	119	128	120	127	135	151
1922–23	120	107	113	113	121	131	144
1923–24	117	106	106	105	107	121	[5] 127
1924–25	156	156	139	135	159	170	181
1925–26	161	144	161	163	169	180	176
1926–27	146	155	140	135	138	156	163
1927–28	136	132	138	135	149	153	152
1928–29	118	113	117	112	139	131	128
1929–30	133	119	130	120	130	126	129
1930–31	83	78	84	76	83	[3] 92	80
1931–32	68	76	53	47	52	68	59
1932–33	60	58	53	51	55	69	54
1933–34	94	103	94	88	94	106	68

[1] 1900–1901 to 1908–9, averages of monthly high and low, from Annual Statistical Report, New York Produce Exchange, of No. 1 Northern Spring; 1909–10 to 1933–34, averages of daily closing prices in the cash market, from New York Journal of Commerce.

[2] Compiled from Broomhall's Yearbooks and Corn Trade News. 1900–1901 to 1925–26, imported red; 1926–27 to 1933–34, average of all parcels at Liverpool.

[3] Average for 6 months.

[4] Average for 10 months.

[5] Average for 11 months.

Bureau of Agricultural Economics.

The prices at Chicago, Minneapolis, Kansas City, and St. Louis are weighted averages. New York and Liverpool are simple averages. The weighted average prices are compiled from daily trade papers of markets named.

TABLE 20.—*Wheat: Weighted average price per bushel of reported cash sales at Minneapolis, St. Louis, Kansas City, and six markets combined, 1925–26 to 1934–35*

Grade, market, and year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Weighted average
No. 1 Dark Northern Spring, Minneapolis:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	166	167	158	158	167	177	178	174	167	166	164	167	165
1926–27	175	156	148	153	148	148	147	146	143	141	153	157	151
1927–28	158	150	137	134	134	137	143	142	147	163	164	153	141
1928–29	147	124	126	123	124	122	129	136	132	129	121	123	126
1929–30	150	138	137	132	130	132	131	125	115	114	110	105	130
1930–31	96	92	87	83	75	77	77	76	76	80	82	76	82
1931–32	65	66	71	72	80	74	77	77	72	73	72	64	71
1932–33	59	59	59	54	50	49	51	50	54	66	76	81	61
1933–34	107	92	90	85	87	84	90	90	89	84	94	104	91
1934–35	108	120	121	115	114	117							
No. 2 Red Winter, St. Louis:													
1925–26	159	172	171	170	171	184	194	185	170	171	162	147	169
1926–27	142	134	136	140	136	137	138	135	130	129	142	150	138
1927–28	141	142	142	145	141	144	151	156	169	196	196	179	149
1928–29	147	138	145	144	145	139	142	140	135	125	117	121	139
1929–30	139	132	135	132	129	135	134	123	118	117	114	105	130
1930–31	85	89	88	87	83	83	78	79	78	80	79	72	83
1931–32	48	47	47	52	62	57	57	57	55	57	56	49	52
1932–33	47	53	54	50	47	46	50	49	55	69	81	82	55
1933–34	101	92	89	86	90	87	91	91	89	83	87	91	94
1934–35	92	101	104	100	101	104							
No. 2 Amber Durum, Minneapolis:													
1925–26	164	150	130	129	143	156	157	151	144	149	147	150	144
1926–27	154	153	138	150	161	174	168	160	157	154	158	157	155
1927–28	153	140	128	123	128	133	130	129	133	141	140	131	132
1928–29	123	108	106	112	114	110	127	129	124	118	108	115	113
1929–30	135	127	128	125	119	123	119	111	97	99	97	88	119
1930–31	87	86	79	78	70	74	72	73	72	73	77	64	78
1931–32	61	73	73	79	87	84	87	86	78	72	67	56	76
1932–33	54	57	53	51	50	50	52	51	57	68	74	73	58
1933–34	108	102	100	97	100	97	111	109	110	97	109	112	103
1934–35	132	144	151	145	142	141							
No. 2 Hard Winter, Kansas City:													
1925–26	154	164	158	158	163	172	178	171	161	159	155	153	163
1926–27	137	131	132	139	137	138	137	135	133	131	142	144	135
1927–28	136	135	131	128	131	132	133	133	138	152	160	147	135
1928–29	120	106	107	110	112	111	114	118	116	110	101	105	112
1929–30	125	123	124	122	119	121	119	113	102	101	99	89	120
1930–31	80	81	78	74	69	71	69	69	70	73	73	68	76
1931–32	44	43	43	48	59	52	53	54	51	53	54	46	47
1932–33	45	48	48	45	43	42	44	44	48	60	70	76	51
1933–34	98	90	87	83	84	80	84	85	82	78	86	89	88
1934–35	93	107	108	102	102	104							
6 markets, all classes and grades: [1]													
1925–26	155.7	160.5	144.8	143.3	153.5	165.7	170.3	164.8	154.9	156.0	153.8	151.6	155.0
1926–27	141.6	135.3	135.6	139.4	137.7	139.5	138.8	136.2	133.6	134.7	145.1	148.6	138.3
1927–28	138.7	136.4	128.7	125.1	125.6	128.0	131.0	132.0	136.6	150.7	151.4	141.8	132.9
1928–29	126.0	109.4	108.9	107.0	109.1	107.4	113.7	118.1	114.2	109.2	101.1	105.3	110.6
1929–30	129.8	125.7	127.4	123.7	121.2	123.5	121.6	115.8	103.9	102.5	100.9	94.1	121.9
1930–31	82.6	84.7	79.0	76.0	69.8	72.5	71.4	70.9	71.4	74.5	75.5	66.8	77.1
1931–32	46.5	50.6	55.7	58.4	68.7	60.0	61.3	59.0	57.8	60.1	60.8	52.8	55.1
1932–33	47.6	55.1	55.1	51.2	48.8	46.1	48.4	47.9	53.1	64.4	73.4	77.7	57.0
1933–34	100.3	92.3	89.1	84.3	86.7	83.0	88.3	90.9	88.1	82.8	93.7	94.9	91.2
1934–35	94.6	114.7	119.2	113.8	113.2	112.2							

[1] Compiled from daily trade papers of markets named. The markets are Chicago, Minneapolis, Kansas City, St. Louis, Omaha, and Duluth. The prices in this section of the table are comparable with prices paid to producers in that the latter are averages of the several prices reported which cover all classes and grades sold by producers.

Bureau of Agricultural Economics: computed by weighting selling price by number of car lots sold, as reported in Minneapolis Daily Market Record, St. Louis Daily Market Reporter, and Kansas City Grain Market Review. Data for earlier years in 1928 Yearbook, table 22.

TABLE 21.—*Wheat, No. 3 Manitoba Northern: Average cash price per bushel at Winnipeg, in terms of United States money, 1925–26 to 1934–35* [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	153	160	132	120	136	149	146	144	138	146	144	144	143
1926–27	149	138	133	136	131	123	123	127	130	133	146	149	135
1927–28	153	145	131	127	124	124	123	124	131	141	142	130	133
1928–29	120	108	106	111	111	109	112	120	119	115	107	112	113
1929–30	152	152	144	134	126	130	123	110	100	103	104	98	123
1930–31	90	88	74	68	60	48	47	53	50	54	53	53	62
1931–32	49	46	43	45	52	43	44	48	49	50	49	43	47
1932–33	43	46	43	41	38	32	35	35	38	43	53	57	42
1933–34	75	65	61	54	60	55	59	61	62	61	65	72	62
1934–35	78	83	79	73	75	74							

[1] Average of daily cash closing prices; basis, in store at Fort William and Port Arthur.

Bureau of Agricultural Economics.

Compiled as follows: July 1925–July 1928, Reports on the Grain Trade of Canada; August 1928 to latest date shown, Minneapolis Daily Market Record. Conversions at current rate of exchange September 1931 to end of table; par rate used July 1925–August 1931. Rates are monthly averages as reported by the Federal Reserve Board. Data for earlier years in 1930 Yearbook, table 22.

TABLE 22.—*Wheat: Average spot price per bushel of parcels of imported wheat at Liverpool, 1925–26 to 1934–35*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	168	172	159	148	164	185	181	175	161	171	173	169	169
1926–27	167	162	160	171	171	163	160	157	155	156	165	165	163
1927–28	161	160	151	149	147	148	149	146	151	159	155	147	152
1928–29	141	126	126	129	129	126	131	135	131	125	116	117	128
1929–30	141	142	137	136	127	141	140	125	117	120	115	110	129
1930–31	104	106	91	86	81	74	68	70	67	71	72	67	80
1931–32	62	53	53	58	67	57	56	60	64	64	61	55	59
1932–33	54	57	59	55	52	49	50	47	47	52	61	63	54
1933–34	79	67	73	[1] 60	68	65	69	66	67	68	67	67	68
1934–35	76	94	86	77	76	81	78	76					

[1] Excluding German (on sample) quotations.

Bureau of Agricultural Economics. Parcels are less than cargo lots. Prices are per bushel of 60 pounds. Compiled from Broomhall's Corn Trade News. These are simple averages of daily sales prices of parcels at Liverpool. Conversions at par from January 1926 to August 1931, inclusive. Prior to January 1926, and beginning with September 1931, conversions were made at monthly average of current rates of exchange given in Federal Reserve Bulletins.

TABLE 23.—*Wheat: Volume of trading in futures at all contract markets, by months and crop years, 1924–25 to 1934–35*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1924–25	1,333	1,300	1,068	1,596	1,340	1,528	1,908	1,781	2,273	1,482	1,508	1,759	18,876
1925–26	1,460	1,561	1,475	1,573	1,500	2,349	1,456	1,284	1,864	1,397	1,222	1,204	18,345
1926–27	1,438	1,226	1,156	1,090	1,227	972	704	581	920	846	1,260	1,164	12,584
1927–28	1,018	1,144	923	918	838	543	384	508	923	1,590	1,471	941	11,201
1928–29	996	1,133	818	916	750	517	1,085	892	1,083	1,361	1,253	1,391	12,195
1929–30	2,889	2,265	1,401	1,738	1,805	1,608	1,334	1,484	1,201	1,501	1,004	1,377	19,607
1930–31	1,306	1,531	1,216	1,160	1,094	529	347	369	433	706	635	737	10,063
1931–32	677	647	519	925	1,479	864	654	770	859	1,127	787	840	10,147
1932–33	592	1,214	831	714	725	488	518	365	551	1,548	1,483	1,864	10,890
1933–34	2,000	820	802	989	917	529	519	383	373	632	1,046	1,084	10,093
1934–35	1,089	1,273	605	758	614	542							

Grain Futures Administration.

TABLE 24.—*Wheat: Volume of trading in futures at contract markets, by markets and by crop years, 1924–25 to 1933–34, and monthly for 1934*

Year and month	Chicago Board of Trade	Chicago Open Board	Minneapolis	Kansas City	Duluth	St. Louis	Milwaukee	Seattle	Portland	New York	Omaha [1]	Hutchinson
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1924–25	16,587	446	928	577	190	126.0	22.0	-------	-------	-------	-------	-------
1925–26	15,869	602	973	546	234	96.6	24.0	0.6	-------	-------	-------	-------
1926–27	10,620	429	632	502	155	69.5	20.7	6.9	-------	148.8	-------	-------
1927–28	9,203	342	824	441	272	53.2	27.6	7.4	-------	29.1	-------	-------
1928–29	9,908	387	887	576	377	27.6	25.0	7.9	0.4	-------	-------	-------
1929–30	16,599	466	1,248	875	328	22.2	39.3	14.4	15.0	-------	(2)	-------
1930–31	8,360	297	581	515	220	8.8	15.3	12.2	12.8	25.4	15.3	-------
1931–32	8,566	334	364	773	67	15.2	17.6	5.4	2.9	1.0	.1	[3] 1.3
1932–33	9,093	267	589	799	102	10.8	19.4	5.4	3.1	-------	-------	1.4
1933–34	8,399	249	605	72	735	6.1	18.7	6.0	3.3	-------	-------	.2
1934												
January	437	16	31	30	3	.4	1.1	.2	(2)	-------	-------	(2)
February	321	13	22	23	2	.2	.8	.2	(2)	-------	-------	(2)
March	307	13	25	23	3	.2	1.0	.1	(2)	-------	-------	(2)
April	523	11	44	47	4	.4	1.1	.7	.5	-------	-------	(2)
May	892	25	56	67	4	.1	2.0	.6	.1	-------	-------	(2)
June	901	23	58	95	4	(2)	1.8	.3	.1	-------	-------	(2)
July	922	14	55	94	3	-------	1.6	.4	.2	-------	-------	(2)
August	1,068	17	80	101	3	(2)	2.5	.6	.3	-------	-------	.1
September	500	10	43	48	2	-------	1.2	.2	.1	-------	-------	.1
October	652	12	39	52	1	-------	1.4	.2	(2)	-------	-------	(2)
November	515	10	33	53	1	-------	1.3	.5	.3	-------	-------	(2)
December	462	8	27	43	1	(2)	.9	.2	(2)	-------	-------	(2)

[1] Trading on Omaha Grain Exchange started June 16, 1930 and was suspended Dec. 7, 1932.
[2] Less than 50,000 bushels.
[3] Trading on Hutchinson Board of Trade Association began May 16, 1932.

Grain Futures Administration.

TABLE 25.—*Wheat: Open commitments in all futures combined, Chicago Board of Trade, semimonthly, Jan. 15, 1924–Dec. 31, 1934*

Date	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
Jan. 15	96	117	112	89	83	116	196	132	116	134	129
Jan. 31	95	114	109	88	84	115	201	134	113	133	134
Feb. 15	105	111	108	88	86	128	194	133	117	132	131
Feb. 28	107	113	105	89	88	142	178	135	126	129	126
Mar. 15	105	108	100	90	85	146	173	130	130	125	120
Mar. 31	93	98	92	82	95	143	168	127	126	127	116
Apr. 15	93	93	97	82	101	147	165	126	120	136	113
Apr. 30	75	83	93	69	122	133	140	115	114	148	96
May 15	166	87	89	68	102	127	132	93	110	150	90
May 31	65	97	73	68	93	134	125	70	112	151	91
June 16	69	104	87	75	93	125	127	78	112	160	103
June 30	82	93	89	72	87	140	105	79	106	164	117
July 15	78	90	89	82	85	164	110	88	111	191	140
July 31	98	94	82	75	102	210	126	86	121	167	158
Aug. 15	117	94	101	85	112	218	143	95	139	163	163
Aug. 30	108	98	107	79	113	216	142	96	157	150	158
Sept. 15	106	102	100	83	116	230	162	95	162	151	153
Sept. 30	104	99	96	85	111	243	167	94	171	158	147
Oct. 15	110	112	100	89	123	246	174	98	165	152	135
Oct. 31	110	115	104	89	125	221	185	121	155	137	133
Nov. 15	118	110	110	94	130	198	184	127	155	142	133
Nov. 30	133	110	103	84	133	190	161	123	139	138	128
Dec. 15	124	105	96	75	128	190	155	118	139	138	125
Dec. 31	116	112	92	74	129	184	145	115	133	133	119

Grain Futures Administration.
The maximum open commitments in Chicago wheat futures during period shown were 248,294,000 bushels, Oct. 16, 1929; the minimum open commitments were 60,720,000 bushels, May 24, 1924.

TABLE 26.—*Wheat, including flour, in terms of grain: International trade, average 1925–26 to 1929–30, annual 1930–31 to 1933–34*

Country	Year beginning July									
	Average 1925–26 to 1929–30		1930–31		1931–32		1932–33		1933–34 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	307,640	796	267,365	243	199,563	232	267,342	167	198,555	321
United States	170,077	15,815	131,475	19,059	135,797	12,886	41,211	9,382	37,001	[2] 11,494
Argentina	159,377	[3] 10	120,638	-------	144,920	-------	120,272	-------	144,849	-------
Australia	83,268	3	143,296	2	155,451	1	148,552	3	86,509	-------
Hungary	23,539	8	18,425	3	18,064	1	7,010	3	29,615	0
Union of Soviet Socialist Republics	17,731	0	111,780	253	71,829	2,093	19,676	2,726	33,787	247
Yugoslavia	10,822	5	5,332	8	15,369	-------	1,162	-------	839	-------
British India	10,080	8,636	10,201	10,620	3,870	1,360	2,169	2,370	1,980	480
Rumania	6,528	79	16,072	15	37,481	12	[4] 179	[4] 24	[4] 248	[4] 18
Algeria	5,162	[5] 2,104	10,125	2,419	7,039	2,570	11,505	1,675	12,435	-------
Tunis	3,518	669	6,286	909	8,365	678	7,672	576	2,613	1,843
Bulgaria	1,869	[6] 1,804	5,041	0	11,795	0	3,144	0	4,769	0
Chile	925	456	1,193	12	47	6	27	1,823	693	1,839
Total	800,536	30,385	847,229	33,543	809,590	19,839	629,921	18,749	553,893	16,242
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	11,369	215,665	10,064	230,449	12,294	257,405	10,138	227,115	7,125	223,276
Germany	11,527	85,668	825	30,853	12,329	34,290	25,290	34,049	32,519	28,063
Italy	2,014	76,212	2,652	86,231	4,936	38,421	8,294	21,465	8,921	17,244
France	4,170	46,574	22,145	66,929	12,549	93,311	9,104	47,981	11,964	30,075
Belgium	2,452	43,482	3,102	48,261	6,733	54,654	3,847	44,910	2,502	43,683
Brazil	0	32,839	0	30,708	0	31,595	0	30,473	0	33,586
Netherlands	943	30,050	1,428	36,830	366	31,431	900	27,351	2,196	26,273
China [7]	1,862	23,486	59	22,020	93	65,575	[8] 2,583	[8] 53,838	2,099	49,276
Japan	5,989	23,158	7,953	25,343	7,592	29,977	15,093	18,832	12,795	16,564
Greece	0	20,055	0	24,081	0	23,941	0	19,517	0	11,919
Czechoslovakia	418	18,604	4,007	17,063	3,365	23,860	4,162	11,352	3,199	2,935
Irish Free State	[5] 74	18,502	-------	19,007	-------	19,902	-------	18,419	-------	19,035
Switzerland	0	16,461	4	18,393	27	21,129	28	19,313	10	17,588
Austria	116	16,275	267	17,030	114	14,194	41	13,422	39	10,636
Egypt	162	10,448	24	9,699	7	7,682	53	633	13	240
Denmark	524	10,102	130	11,540	48	17,392	62	12,151	49	12,025
Sweden	2,004	9,092	76	5,483	14	6,606	23	3,640	14	1,813
Norway	-------	6,964	-------	8,275	-------	8,887	-------	8,234	-------	8,557
Union of South Africa	253	6,317	173	3,631	291	2,096	154	353	185	92
Cuba	0	5,647	0	4,560	0	4,064	0	-------	0	-------
Finland	0	5,390	0	4,878	0	4,197	0	4,146	0	4,239
Spain	526	5,189	169	13	55	2,539	20	8,264	77	0
Poland	1,407	4,820	4,286	286	3,762	585	2,092	811	2,349	846
Netherlands Indies [7]	0	3,328	0	4,016	1	4,032	1	3,600	[9] 0	[9] 2,375
Syria and Lebanon [4]	[3] 14	2,710	290	458	1,050	1,364	694	2,268	874	2,451
Latvia [4]	17	2,027	176	1,966	0	790	4	283	0	0
New Zealand	45	1,658	1	752	1	701	706	2,124	300	688
Indo-China	[4] 0	1,177	0	988	0	924	0	770	0	[10] 738
Estonia	0	1,062	0	880	0	520	0	3	0	1
Total	45,886	742,962	57,831	730,623	65,627	802,064	83,289	635,317	87,230	564,218

[1] Preliminary.
[2] Imports for consumption.
[3] 3-year average.
[4] Monthly Crop Report and Agricultural Statistics, International Institute of Agriculture.
[5] 4-year average.
[6] 1 year only.
[7] Calendar year.
[8] Beginning July 1, 1932, figures do not include Manchuria.
[9] Java and Madura only.
[10] Figure for 11 months only.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 27.—*Flour, spring wheat, family patent: Average wholesale price per barrel,*[1] *Minneapolis, 1925–26 to 1934–35*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	8.78	9.04	8.52	8.52	8.81	9.52	9.85	9.46	9.19	9.20	9.00	9.32	9.10
1926–27	9.27	8.50	7.87	8.08	7.85	8.02	7.95	7.85	7.74	7.75	8.23	8.39	8.12
1927–28	8.26	7.98	7.52	7.43	7.38	7.37	7.48	7.47	7.88	8.48	8.68	8.12	7.84
1928–29	7.63	6.94	6.87	6.76	6.68	6.68	7.00	7.40	7.23	7.07	6.60	6.68	6.96
1929–30	8.38	7.96	7.79	7.38	7.29	7.54	7.29	6.91	6.71	6.67	6.43	6.31	7.22
1930–31	6.01	5.92	5.54	5.42	5.24	5.34	5.37	5.22	5.07	4.94	5.17	5.08	5.36
1931–32	4.56	4.50	4.44	4.52	5.01	4.75	4.50	4.42	4.31	4.62	4.71	4.38	4.56
1932–33	4.24	4.43	4.44	4.19	4.02	4.07	4.11	4.10	4.32	4.92	5.41	5.77	4.50
1933–34	8.03	7.57	7.54	7.21	7.28	7.06	7.27	7.28	7.15	6.72	7.06	7.44	7.30
1934–35	7.59	7.93	7.89	7.59	7.47	7.37	------	------	------	------	------	------	------

[1] Packed in 98-pound cotton sacks, 1925–26 to 1931–32; sold in bulk, 1932–33 to date; basis all quotations carload lots.

Bureau of Agricultural Economics; compiled from the Minneapolis Daily Market Record.
Prices 1909–10 to 1924–25 appear in 1930 Yearbook, table 25.

TABLE 28.—*Bread: Average retail price per pound (baked weight) in leading cities of the United States, 1925–26 to 1934–35*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1926–27	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.3	9.4
1927–28	9.3	9.3	9.3	9.3	9.3	9.2	9.2	9.2	9.1	9.1	9.1	9.2	9.2
1928–29	9.2	9.2	9.1	9.1	9.1	9.0	9.0	9.0	9.0	9.0	9.0	9.2	9.1
1929–30	9.0	9.0	9.0	8.9	8.9	8.9	8.9	8.8	8.8	8.8	8.8	8.8	8.9
1930–31	8.8	8.7	8.7	8.6	8.5	8.5	8.2	8.0	7.9	7.7	7.7	7.6	8.2
1931–32	7.5	7.4	7.3	7.3	7.3	7.2	7.1	7.0	7.0	6.9	6.9	6.9	7.2
1932–33	6.8	6.8	6.7	6.7	6.7	6.6	6.4	6.4	6.4	6.4	6.5	6.6	6.6
1933–34 [1]	7.2	7.6	7.7	8.0	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.1	7.8
1934–35 [1]	8.2	8.3	8.4	8.4	8.3	8.3	------	------	------	------	------	------	------

[1] Beginning August 1933, price is for Tuesday nearest the 15th of month.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics retail prices, monthly.
Data for 1913–14 to 1924–25 are available in the 1930 Yearbook, table 26.

TABLE 29.—*Bran, standard: Average price per ton, Minneapolis, 1925–26 to 1934–35* [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	23.58	24.20	23.09	22.83	25.73	26.34	26.17	23.68	22.24	25.05	23.30	21.31	23.96
1926–27	22.02	21.69	21.64	21.33	23.14	26.02	26.48	27.64	26.96	27.31	28.43	26.51	24.93
1927–28	25.13	26.85	25.88	25.96	28.41	30.09	30.66	32.47	35.68	34.28	35.03	29.68	30.01
1928–29	27.29	24.12	25.49	28.09	30.82	31.69	30.54	28.64	26.88	22.93	22.38	22.56	26.79
1929–30	26.17	26.44	29.19	28.21	27.90	27.66	26.58	24.45	23.17	27.43	25.06	21.25	26.13
1930–31	19.33	24.17	21.43	19.91	17.97	16.57	15.61	14.66	17.87	19.02	14.15	11.38	17.67
1931–32	10.30	10.55	10.02	9.93	14.17	13.04	12.99	11.65	13.35	13.63	10.74	9.45	11.65
1932–33	8.56	8.58	8.44	7.93	8.33	8.15	8.27	9.35	10.82	11.82	12.17	11.56	9.50
1933–34	18.18	17.31	14.36	13.41	13.71	12.89	14.80	16.55	19.29	17.77	17.55	21.45	16.44
1934–35	20.09	23.34	22.43	22.02	24.38	29.03	------	------	------	------	------	------	------

[1] Quoted as follows: Through May 31, 1930, no container nor lots designated; June 2–Oct. 31, 1930, "based on car lots per ton"; beginning Nov. 1, 1930, "car lots, f. o. b. Minneapolis, prompt shipment."

Bureau of Agricultural Economics; compiled from the Minneapolis Daily Market Record.
Prices are simple averages of daily quotations.

TABLE 30.—*Middlings, standard: Average price per ton, Minneapolis, 1925–26 to 1934–35* [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	25.53	26.95	26.37	24.19	26.31	25.28	26.10	23.71	22.03	24.20	21.77	21.60	24.50
1926–27	22.96	23.01	22.67	22.31	24.16	27.38	27.35	28.61	28.46	27.79	29.13	29.10	26.08
1927–28	31.42	34.46	29.22	26.88	28.72	30.00	30.52	32.71	35.85	34.33	37.14	35.30	32.21
1928–29	32.18	24.31	27.44	28.61	31.01	31.21	30.46	28.31	26.28	22.76	21.98	22.64	27.27
1929–30	28.42	29.25	32.66	32.08	28.76	28.00	26.46	24.11	22.71	26.74	25.21	22.09	27.21
1930–31	20.64	25.10	22.17	19.55	17.49	16.00	14.85	13.52	17.36	18.52	13.85	11.95	17.58
1931–32	11.06	10.35	10.35	10.02	14.40	13.03	12.12	11.01	12.42	13.52	10.72	9.13	11.51
1932–33	9.57	9.52	8.50	8.08	8.37	7.62	8.10	8.78	10.28	11.34	12.61	12.40	9.60
1933–34	19.91	19.59	15.58	14.67	14.94	13.10	15.12	16.30	17.92	16.68	16.96	22.12	16.91
1934–35	22.04	24.45	22.52	22.02	25.42	31.34							

[1] Quoted as follows: Through May 31, 1930, no container nor lots designated; June 2–Oct. 31, 1930, "based on car lots per ton"; beginning Nov. 1, 1930, "car lots, f. o. b. Minneapolis, prompt shipment."

Bureau of Agricultural Economics; compiled from the Minneapolis Daily Market Record.
Prices are simple averages of daily quotations. Data for earlier years in 1928 Yearbook, table 30.

TABLE 31.—*Rye: Acreage, production, value, and foreign trade, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel of No. 2 rye at Minneapolis, year beginning July [2]	Foreign trade, including flour, year beginning July [3]			
							Domestic exports	Imports	Net exports [4]	
									Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1919	*7,679*	*9.9*	*75,992*							
1919	7,168	11.0	78,659	145.9	114,801	160	41,531	1,077	40,454	51.4
1920	4,825	12.8	61,915	146.4	90,626	161	47,337	452	46,885	75.7
1921	4,851	12.6	61,023	84.0	51,274	92	29,944	700	29,244	47.9
1922	6,757	14.9	100,986	63.9	64,523	75	51,663	99	51,564	51.1
1923	4,936	11.3	55,961	59.3	33,168	65	19,902	2	19,900	35.6
1924	*3,744*	*14.9*	*55,674*							
1924	3,941	15.0	59,076	95.2	56,261	114	50,242	1	50,241	85.0
1925	3,800	11.3	42,779	79.1	33,819	88	12,647		12,646	29.6
1926	3,419	10.3	35,361	83.0	29,348	98	21,698	1	21,697	61.4
1927	3,458	15.1	52,111	83.5	43,487	104	26,346	2	26,345	50.6
1928	3,310	11.7	38,591	83.6	32,255	95	9,488	1	9,487	24.6
1929	*3,033*	*11.3*	*34,303*							
1929	3,110	11.4	35,482	85.7	30,395	90	2,600	1	2,599	7.3
1930	3,612	12.8	46,275	44.0	20,366	51	227	88	139	.3
1931	3,104	10.4	32,290	33.6	10,863	42	909	1	908	2.8
1932	3,344	12.2	40,639	27.6	11,198	41	311	14	297	.7
1933	2,349	9.0	21,150	61.8	13,071	69	21	12,019	[5] 11,998	
1934 [6]	1,937	8.3	16,040	74.6	11,961					

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.
[2] Prices are from Minneapolis Daily Market Record and are averages of daily prices weighted by car-lot sales.
[3] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34, and official records of the Bureau of Foreign and Domestic Commerce. Rye—imports for consumption, 1919–34. Rye flour—imports for consumption, 1919–34. Rye flour converted to rye on the basis that 1 barrel of rye flour is the product of 6 bushels of grain.
[4] Domestic exports minus imports for consumption. (See introductory text.)
[5] Net imports.
[6] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text. Italic figures are census returns.

TABLE 32.—*Rye: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
New York	21	16	20	14.8	15.0	12.5	322	240	250	74	84
New Jersey	27	22	19	17.0	16.0	18.0	467	352	342	73	78
Pennsylvania	114	119	112	13.8	13.5	12.0	1,572	1,606	1,344	68	72
North Atlantic	162	157	151	14.6	14.0	12.8	2,361	2,198	1,936	69.5	74.6
Ohio	44	55	63	13.3	12.5	13.0	629	688	819	62	70
Indiana	92	97	130	12.4	10.0	11.5	1,138	970	1,495	65	69
Illinois	52	50	60	14.8	12.5	10.5	778	625	630	68	75
Michigan	155	125	146	13.0	10.5	9.0	2,027	1,312	1,314	58	67
Wisconsin	192	226	221	12.2	10.0	8.0	2,329	2,260	1,768	60	73
Minnesota	398	291	291	15.8	12.5	8.5	6,269	3,638	2,474	62	72
Iowa	45	33	41	16.1	13.0	8.5	688	429	348	63	78
Missouri	17	11	15	9.5	7.5	8.0	167	82	120	75	90
North Dakota	1,196	550	198	11.3	6.5	5.2	13,759	3,575	1,030	55	67
South Dakota	264	190	82	11.1	4.0	4.0	3,193	760	328	56	71
Nebraska	275	214	182	11.4	8.0	4.0	3,234	1,712	728	49	82
Kansas	23	16	22	10.9	8.0	8.0	267	128	176	59	85
North Central	2,754	1,858	1,451	12.6	8.7	7.7	34,479	16,179	11,230	58.7	71.9
Delaware	5	5	6	14.4	10.5	15.0	76	52	90	93	84
Maryland	18	17	20	14.0	13.0	15.0	256	221	300	80	77
Virginia	45	55	50	11.4	10.5	11.0	574	578	550	83	87
West Virginia	12	12	12	11.1	12.0	10.0	145	144	120	74	79
North Carolina	55	60	66	7.6	7.0	7.5	444	420	495	94	100
South Carolina	8	7	8	8.5	7.0	7.5	73	49	60	124	136
Georgia	14	13	13	6.4	5.5	6.5	95	72	84	103	115
South Atlantic	157	169	175	9.7	9.1	9.7	1,664	1,536	1,699	87.4	91.5
Kentucky	16	12	12	11.7	11.0	11.5	190	132	138	80	83
Tennessee	16	16	15	7.1	6.5	5.5	109	104	82	90	94
Oklahoma	8	5	6	9.0	7.5	9.0	81	38	54	69	87
Texas	3	2	3	10.6	6.0	11.0	31	12	33	71	71
South Central	43	35	36	9.4	8.2	8.5	411	286	307	82.2	85.3
Montana	65	50	35	11.4	7.0	6.0	735	350	210	40	60
Idaho	4	3	4	11.7	11.0	9.0	45	33	36	49	64
Wyoming	33	23	16	7.9	5.5	4.5	262	126	72	44	77
Colorado	64	18	32	8.6	6.5	5.5	546	117	176	49	80
Utah	3	3	3	8.8	7.0	5.0	25	21	15	63	76
Washington	15	12	14	10.8	7.0	8.5	178	84	119	61	72
Oregon	18	21	20	13.2	10.5	12.0	243	220	240	64	75
Western	203	130	124	9.9	7.3	7.0	2,034	951	868	49.7	71.7
United States	3,319	2,349	1,937	12.4	9.0	8.3	40,950	21,150	16,040	61.8	74.6

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 33.—*Rye: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1931–32 to 1934–35*

Country	Acreage					Yield per acre					Production				
	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]
NORTHERN HEMISPHERE	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
North America:															
Canada	1,386	778	774	583	735	14.4	6.8	10.9	7.4	7.4	19,994	5,322	8,470	4,327	5,437
United States	4,857	3,104	3,344	2,349	1,937	13.2	10.4	12.2	9.0	8.3	63,965	32,200	40,639	21,150	16,040
Total	6,243	3,882	4,118	2,932	2,672	13.4	9.7	11.9	8.7	8.0	83,959	37,612	49,109	25,477	21,477
Europe:															
Norway	28	15	16	16	15	27.9	25.2	32.6	27.4	27.9	780	378	522	438	418
Sweden	836	512	516	546	575	26.2	21.8	33.1	33.2	36.3	21,911	11,146	17,094	18,128	20,865
Denmark	535	332	297	353	375	24.6	25.3	29.4	28.0	29.4	13,162	8,406	8,736	9,897	11,023
Netherlands	501	445	410	408	450	32.6	31.8	33.8	38.2	36.2	16,331	14,167	13,864	15,602	16,291
Belgium	559	549	562	578	544	36.8	37.3	42.1	38.6	38.2	20,564	20,482	23,662	22,310	20,802
Luxemburg	19	16	20	21	19	18.4	21.0	24.8	27.4	27.7	349	336	496	575	527
France	2,196	1,760	1,732	1,706	1,669	18.5	16.8	19.6	20.7	19.6	40,645	29,518	33,876	35,337	32,642
Spain	1,802	1,516	1,516	1,460	1,451	15.4	13.9	17.1	14.2	15.3	27,721	21,102	25,905	20,702	22,176
Portugal	604	427	366	409	.....	8.5	11.9	12.9	8.8	.....	5,110	5,070	4,704	3,615	4,802
Italy	317	304	288	282	278	19.8	21.5	21.9	23.9	20.2	6,277	6,521	6,313	6,739	5,607
Switzerland	55	46	46	46	35	31.8	30.5	32.2	33.6	35.5	1,747	1,401	1,480	1,545	1,242
Germany	10,745	10,789	10,996	11,179	11,097	23.8	24.4	29.9	30.7	27.0	255,937	262,977	329,255	343,570	299,496
Austria	888	934	957	958	949	18.3	20.3	25.3	28.2	25.2	16,242	18,931	24,227	27,042	23,896
Czechoslovakia	2,128	2,470	2,569	2,584	2,442	24.5	22.1	33.3	31.8	24.6	52,200	54,630	85,660	82,103	59,968
Hungary	1,591	1,486	1,553	1,677	1,632	16.9	14.6	19.5	22.5	12.4	26,839	21,672	30,300	37,654	20,197
Yugoslavia	477	603	600	633	613	12.4	12.6	13.9	15.3	12.5	5,930	7,614	8,328	9,659	7,689
Greece	84	172	169	183	204	12.5	10.5	12.3	15.3	16.9	1,051	1,800	2,087	2,800	3,440
Bulgaria	442	600	543	516	476	13.2	17.8	16.6	18.8	13.8	5,831	10,653	9,030	9,683	6,576
Rumania	692	1,006	861	958	908	12.1	13.9	12.2	18.3	9.6	8,371	13,962	10,513	17,555	8,689
Poland	12,911	14,263	13,951	14,271	14,014	16.0	15.7	17.2	19.5	15.9	206,884	224,500	240,556	278,460	222,764
Lithuania	1,355	1,257	1,194	1,210	1,225	16.9	12.9	18.9	18.0	20.6	22,942	16,229	22,521	21,731	25,221
Latvia	624	572	593	637	663	15.3	9.8	19.9	21.9	24.2	9,535	5,615	11,793	13,979	16,056
Estonia	[2] 394	356	364	373	364	[2] 15.9	16.3	19.5	23.4	24.1	[2] 6,246	5,820	7,113	8,735	8,768
Finland	578	528	538	575	605	19.6	23.5	24.1	25.4	25.7	11,316	12,411	12,966	14,633	15,543
Union of Soviet Socialist Republics	59,672	68,311	64,715	62,719	.....	11.8	12.7	13.4	15.2	.....	706,347	865,699	866,880	952,308	.....
Total European countries reporting all years	39,757	40,531	40,291	41,170	40,603	19.6	19.0	23.0	24.3	20.9	778,811	770,271	926,297	998,877	849,896

Estimated European total, excluding Union of Soviet Socialist Republics	40,500	41,000	40,700	41,600	41,000						784,000	776,000	932,000	1,003,000	855,000
Total Northern Hemisphere countries reporting all years	46,000	44,413	44,409	44,102	43,275	18.8	18.2	22.0	23.2	20.1	862,770	807,883	975,406	1,024,354	871,373
Estimated Northern Hemisphere total, excluding Union of Soviet Socialist Republics and China	47,100	45,900	45,500	45,400	45,100						875,000	832,000	992,000	1,045,000	892,000
SOUTHERN HEMISPHERE															
Chile	4	7	9			16.0	11.7				64	82			
Argentina	279	959	1,259	904	1,458	11.0	10.2	10.0	10.3	12.2	3,061	9,744	12,598	9,330	17,716
Union of South Africa	143					5.7					816				
Australia	4	4				12.8	13.5				51	54			
Estimated world total, excluding Union of Soviet Socialist Republics and China	47,700	47,400	47,200	47,300	47,100						880,000	843,000	1,007,000	1,056,000	911,000

[1] Preliminary.
[2] 4-year average.

Bureau of Agricultural Economics.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 34.—*Rye: Production, world and selected countries, 1894–95 to 1934–35*

Crop year	World, excluding Russia and China	Northern Hemisphere, excluding Russia and China	Europe, excluding Russia	Selected countries						
				Russia [1]	United States	Germany	France	Poland	Hungary	Czechoslovakia
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1894–95	710	709	668	863	27	328	75	----------	58	----------
1895–96	663	661	618	773	30	304	72	----------	47	----------
1896–97	719	717	673	790	32	336	70	----------	51	----------
1897–98	646	644	600	654	31	322	48	----------	36	----------
1898–99	722	721	678	738	29	356	67	----------	46	----------
1899–1900	705	704	664	912	26	342	67	----------	50	----------
1900–1	671	670	629	920	27	337	59	----------	42	----------
1901–2	690	688	644	755	31	321	58	----------	44	----------
1902–3	731	730	682	919	34	374	46	----------	53	----------
1903–4	764	762	720	912	29	390	58	----------	51	----------
1904–5	752	750	709	1,008	28	396	53	----------	46	----------
1905–6	778	777	732	737	31	378	59	----------	53	----------
1906–7	780	778	736	668	30	379	51	----------	54	----------
1907–8	744	742	700	815	28	384	56	----------	42	----------
1908–9	820	819	776	790	29	423	52	----------	48	----------
1909–10	867	864	821	904	30	447	56	----------	47	----------
1910–11	812	810	768	875	29	414	44	----------	52	----------
1911–12	827	824	779	769	31	428	47	----------	54	----------
1912–13	864	862	810	1,051	38	457	49	----------	57	----------
1913–14	891	888	834	1,011	40	481	50	----------	56	----------
1914–15	765	763	707	[2] 870	42	410	44	----------	45	----------
1915–16	684	681	621	[3] 910	47	360	33	----------	48	----------
1916–17	657	655	598	[4] 771	43	352	33	----------	----------	----------
1917–18	545	542	466	614	60	[5] 228	25	----------	----------	----------
1918–19	582	580	476	----------	83	260	[5] 30	----------	----------	----------
1919–20	689	687	586	----------	79	238	31	103	----------	33
1920–21	620	617	532	368	62	194	37	74	[5] 20	33
1921–22	858	855	766	401	61	268	44	175	23	54
1922–23	866	860	720	715	101	206	38	203	25	51
1923–24	924	918	832	779	56	263	37	243	31	53
1924–25	739	735	655	741	59	226	40	148	22	45
1925–26	1,013	1,006	947	896	43	317	44	265	33	58
1926–27	825	817	763	931	35	252	30	204	31	56
1927–28	898	887	813	952	52	269	34	232	22	60
1928–29	975	965	905	760	39	335	34	241	33	72
1929–30	1,011	1,004	940	802	35	321	36	276	31	72
1930–31	1,013	1,007	924	929	46	302	28	274	28	70
1931–32	843	832	776	866	32	263	30	224	22	55
1932–33	1,007	992	932	867	41	329	34	241	30	86
1933–34	1,056	1,045	1,003	952	21	344	35	278	38	82
1934–35 [6]	911	892	855	----------	16	299	33	223	20	60

[1] Includes all Russian territory reporting for the years shown.
[2] Exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of Latvia and the Ukraine, and the 2 Provinces of Batum and Elizabetpol in Transcaucasia.
[4] Beginning with this year, estimates for the present territory of the Union of Soviet Socialist Republics exclusive of Turkestan, Transcaucasia, and the Far East, which territory in 1924 produced 8,646,000 bushels.
[5] Beginning with this year post-war boundaries, therefore not comparable with earlier years.
[6] Preliminary.

Bureau of Agricultural Economics.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 35.—*Rye: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1924–25 to 1933–34*

Year	Percentage of receipts during—												
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Year
	Per-cent	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*
1924–25	3.9	16.9	25.4	23.3	10.7	7.0	5.0	3.1	1.7	1.0	1.2	0.8	100.0
1925–26	5.2	19.2	23.3	12.4	8.7	8.9	6.6	4.6	3.1	2.4	2.8	2.8	100.0
1926–27	8.0	20.1	19.7	13.0	8.5	6.0	6.0	6.0	3.7	2.6	3.0	3.4	100.0
1927–28	4.7	19.0	25.6	17.5	9.8	5.8	4.4	4.1	3.7	2.4	1.7	1.3	100.0
1928–29	4.5	19.5	27.0	16.3	9.3	6.1	4.5	5.1	2.9	1.9	1.4	1.5	100.0
1929–30	12.3	34.0	18.0	11.6	6.6	6.0	3.4	2.3	1.7	1.4	1.5	1.2	100.0
1930–31	11.2	32.7	23.0	11.7	4.7	4.2	2.6	2.7	1.9	1.9	1.8	1.6	100.0
1931–32	11.7	21.6	14.7	10.7	8.6	6.5	6.0	5.5	5.2	3.8	3.3	2.4	100.0
1932–33	7.5	17.4	13.3	8.6	6.1	4.7	4.6	3.5	4.7	6.4	9.2	14.0	100.0
1933–34	22.0	23.3	14.2	9.8	7.3	4.4	3.7	3.6	3.8	2.6	2.6	2.7	100.0

Bureau of Agricultural Economics. Data for earlier years in 1928 Yearbook, table 38.

TABLE 36.—*Rye: Production and farm disposition, United States, 1924–25 to 1934–35*

Season	Production	Used for seed	Fed to live-stock	Ground at mills for home use or exchanged for flour	Sold or for sale	Season	Production	Used for seed	Fed to live-stock	Ground at mills for home use or exchanged for flour	Sold or for sale
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*		*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1924–25	59,076	6,609	10,136	717	41,614	1930–31	46,275	6,888	19,038	390	19,959
1925–26	42,779	6,602	5,219	651	30,307	1931–32	32,290	6,752	14,100	390	11,048
1926–27	35,361	6,075	6,767	586	21,933	1932–33	40,639	6,149	18,827	390	15,273
1927–28	52,111	6,369	6,538	521	38,683	1933–34	21,150	6,545	7,657	390	6,558
1928–29	38,591	5,784	6,679	458	25,670	1934–35 [1]	16,040	5,799	6,151	390	3,700
1929–30	35,482	6,480	7,373	390	21,239						

[1] Preliminary. Disposition items are approximations made in March 1935.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 37.—*Rye: Receipts graded by licensed inspectors, all inspection points, 1924–25 to 1933–34*

Year beginning July	Grade					Total
	No. 1	No. 2	No. 3	No. 4	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1924–25	27,977	24,251	8,841	2,957	876	64,902
1925–26	3,969	11,730	5,111	1,794	494	23,098
1926–27	3,892	9,921	5,794	3,597	1,445	24,649
1927–28	10,659	15,573	4,976	1,409	564	33,181
1928–29	1,787	13,081	6,646	1,994	626	24,134
1929–30	8,985	10,611	1,642	475	288	22,001
1930–31	5,804	9,320	1,198	225	103	16,650
1931–32	2,071	5,531	927	240	71	8,840
1932–33	3,821	7,713	721	261	71	12,587
1933–34	4,559	6,669	2,570	194	1,530	15,522

Bureau of Agricultural Economics.

TABLE 38.—*Rye: Commercial stocks, 1926–27 to 1934–35*

DOMESTIC RYE IN UNITED STATES[1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27							13,092	12,880	13,897	13,905	7,818	2,522
1927–28	1,018	1,454	2,091	2,608	2,077	2,970	3,281	3,915	4,321	5,090	5,544	2,662
1928–29	2,499	2,112	1,351	2,684	4,771	5,589	5,934	6,185	6,440	6,914	6,598	6,532
1929–30	6,632	6,614	8,561	9,771	11,453	12,033	13,997	14,536	14,379	14,285	13,701	12,572
1930–31	12,481	12,073	14,248	17,302	17,291	17,173	16,361	15,629	14,270	12,903	10,990	10,599
1931–32	10,154	9,838	9,405	10,095	10,376	10,431	10,223	10,085	10,006	10,124	9,493	9,428
1932–33	8,942	8,955	9,052	8,700	8,485	8,030	7,993	7,936	7,774	7,688	8,006	8,806
1933–34	10,501	11,273	11,998	12,968	13,457	14,153	13,735	12,936	12,032	11,621	11,002	10,505
1934–35	11,452	12,049	11,798	11,776	12,323	13,425						

UNITED STATES RYE IN CANADA[2]

1926–27							1,658	1,704	1,583	1,384	3,379	869
1927–28	1,465	589	686	1,385	1,390	1,208	930	772	351	259	47	512
1928–29	750	449	357	838	1,248	1,478	1,707	1,425	1,255	1,310	1,367	1,379
1929–30	1,182	1,255	1,540	2,804	2,883	2,900	2,726	2,720	2,714	2,692	2,871	3,821
1930–31	3,789	3,761	3,432	3,139	2,792	2,113	2,131	2,128	2,126	2,119	2,110	1,911
1931–32	1,827	1,792	1,775	1,229	821	782	754	732	675	250	213	295
1932–33	242	160	121	89	99	99	99	99	99	99	99	1
1933–34	1	1	0	0	0	0	0	0	0	0	0	0
1934–35	0	0	0	0	0	0						

CANADIAN RYE IN CANADA[3]

1926–27							3,546	3,758	3,842	3,853	3,064	1,445
1927–28	1,131	1,149	912	2,444	3,479	3,052	4,137	4,787	4,963	4,773	4,525	2,668
1928–29	2,514	1,180	603	2,444	3,448	3,595	4,834	4,760	4,571	4,423	4,019	3,907
1929–30	2,180	3,282	3,982	5,898	7,268	8,087	8,380	8,348	8,517	8,307	8,112	7,992
1930–31	7,937	7,519	8,541	10,907	12,546	12,780	13,135	13,150	13,059	13,230	13,255	12,547
1931–32	12,602	12,161	12,356	12,306	13,021	12,202	11,473	11,161	10,994	10,904	10,345	8,921
1932–33	7,066	5,238	4,753	4,928	4,750	4,359	4,441	4,475	4,579	4,635	4,655	4,855
1933–34	5,036	5,401	5,180	4,687	4,170	4,060	4,024	3,985	3,980	3,940	3,842	3,837
1934–35	3,796	3,815	3,436	4,014	4,042	3,970						

CANADIAN RYE IN UNITED STATES[4]

1926–27							2,266	1,922	1,631	494	689	739
1927–28	63	50	20	124	441	802	851	434	203	90	90	371
1928–29	248	237	12	83	205	258	208	532	559	440	451	480
1929–30	380	394	432	320	429	431	431	431	371	370	426	270
1930–31	188	187	172	239	430	651	489	446	528	344	273	2
1931–32	2	2	2	390	388	1,405	1,746	1,703	1,389	1,631	794	526
1932–33	498	347	412	412	502	412	548	545	545	543	543	213
1933–34	213	192	283	260	374	103	86	86	85	82	77	68
1934–35	68	54	104	50	0	0						

[1] Includes domestic rye in store in public and private elevators in 41 markets and rye afloat in vessels or barges in harbors of lake and seaboard ports. Does not include rye in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of rye intended for local use.

[2] Includes United States rye in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include rye in transit to Canadian ports.

[3] Includes practically all Canadian rye held within Canadian boundaries, exclusive of farm and certain mill stocks.

[4] Includes Canadian rye in store and afloat at 10 United States lake and seaboard ports but not Canadian rye in transit on lakes or canals.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data for domestic and Canadian rye in United States are for stocks on the Saturday nearest the 1st day of the month; for Canadian and United States rye in Canada data are for stocks on the Friday nearest the 1st day of the month.

TABLE 39.—*Rye: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	92.3	92.8	81.9	74.1	73.4	86.8	88.2	82.5	73.4	73.8	72.5	76.0	79.1
1926–27	80.7	86.1	81.6	82.4	83.0	82.4	83.6	88.4	86.4	85.2	90.1	94.9	83.0
1927–28	91.2	80.6	81.4	81.0	84.0	87.8	88.0	89.5	96.0	99.8	111.5	106.8	83.5
1928–29	99.2	83.6	81.8	87.1	86.3	87.2	87.9	91.5	91.5	86.0	79.1	75.7	83.6
1929–30	85.3	91.8	89.2	89.9	85.5	88.4	85.7	78.3	68.4	68.7	63.8	60.7	85.7
1930–31	43.6	53.0	53.1	47.6	41.6	41.1	37.4	34.9	34.3	32.8	33.0	31.4	44.0
1931–32	33.0	32.5	33.2	33.6	41.4	36.8	36.8	36.3	37.7	36.6	33.4	28.8	33.6
1932–33	22.0	23.3	23.6	22.3	22.1	21.1	22.7	21.9	22.8	30.1	38.9	43.5	27.6
1933–34	78.2	58.8	61.4	52.7	55.4	51.9	53.6	54.2	53.1	52.8	51.9	58.2	61.8
1934–35	61.8	73.9	79.1	75.0	71.9	74.4	------	------	------	------	------	------	[1] 74.6

[1] Preliminary.

Bureau of Agricultural Economics; based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop marketing season. Data for earlier years in 1928 Yearbook, table 43. Only monthly prices are comparable.

TABLE 40.—*Rye, including flour in terms of grain: International trade, average 1925–26 to 1929–30, annual 1930–31 to 1933–34*

Country	Year beginning July									
	Average 1925–26 to 1929–30		1930–31		1931–32		1932–33		1933–34 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Germany	15,498	13,815	4,518	1,233	4,393	18,075	6,385	15,808	16,113	4,964
United States	14,556	0	227	0	909	0	311	0	21	[2] 11,949
Union of Soviet Socialist Republics	7,406	0	29,084	0	43,267	0	9,551	0	5,760	0
Poland	6,597	2,453	15,743	10	4,889	226	12,985	386	23,824	411
Hungary	6,559	1	3,319	0	2,712	0	3,003	0	6,481	0
Canada	6,328	129	1,968	18	6,689	11	5,132	6	2,799	6
Argentina	4,511	0	1,610	0	9,272	0	5,306	0	3,949	0
Rumania	1,133	12	2,267	0	3,034	0	[3] 44	[3] 0	[3] 0	[3] 0
Bulgaria	486	0	2,444	0	1,841	0	123	0	32	0
Yugoslavia [4]	176	6	2	6	0	0	1	0	------	------
Algeria [4]	50	3	64	0	50	0	42	0	------	0
Total	63,300	16,419	61,246	1,267	77,056	18,312	42,883	16,200	58,979	17,330
PRINCIPAL IMPORTING COUNTRIES										
Denmark	414	8,109	423	13,468	319	8,230	312	10,683	269	11,006
Norway	------	7,027	------	5,216	------	6,294	------	5,046	------	5,663
Finland	10	6,193	5	3,136	4	2,081	1	2,647	0	2,316
Czechoslovakia	963	4,701	1,737	719	886	9,832	1,024	396	626	48
Austria	103	4,645	86	4,592	60	3,185	77	1,129	70	404
Netherlands	528	4,525	1,454	11,267	805	7,047	172	8,629	40	9,726
Latvia [4]	25	3,203	1	471	1	179	1	0	------	------
Sweden	537	3,008	20	1,131	50	2,188	52	739	37	61
Estonia	------	2,244	------	515	------	42	------	0	------	0
Belgium	43	1,625	240	6,304	1,030	4,875	720	4,936	91	9,055
France	31	1,535	19	4,286	1	3,333	1	1,068	1	219
United Kingdom [5]	98	696	13	345	12	377	9	180	14	------
Italy	9	386	1	1,323	1	336	1	555	0	268
Switzerland	0	91	0	296	1	177	0	615	0	237
Total	2,761	47,988	3,999	53,069	3,170	48,176	2,370	36,623	1,148	39,003

[1] Preliminary.
[2] Imports for consumption.
[3] Monthly Crop Report and Agricultural Statistics, International Institute of Agriculture.
[4] Year beginning Aug. 1; International Yearbook of Agricultural Statistics.
[5] Calendar year.

Bureau of Agricultural Economics, official sources except where otherwise noted.

TABLE 41.—*Rye No. 2: Weighted average price per bushel of reported cash sales, Minneapolis, 1925–26 to 1934–35*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	95	100	83	77	81	98	99	91	81	85	83	89	88
1926–27	102	97	93	95	94	94	99	102	99	99	109	111	98
1927–28	104	92	92	92	99	102	103	106	114	124	128	123	104
1928–29	111	94	94	94	98	97	101	105	100	89	85	84	95
1929–30	107	98	97	97	95	98	91	78	66	68	65	57	90
1930–31	55	60	55	49	43	44	38	37	36	35	36	37	51
1931–32	37	38	39	41	51	45	46	46	47	45	39	32	42
1932–33	32	34	34	32	31	31	33	32	35	43	52	62	41
1933–34	83	72	71	62	62	60	64	61	59	57	60	69	69
1934–35	74	89	87	76	76	80							

Bureau of Agricultural Economics; computed by weighting selling price by number of car lots sold, as reported in Minneapolis Daily Market Record.

Chicago prices, 1909–10 to 1926–27 appear in 1927 Yearbook, table 46. Minneapolis prices, 1909–10 to 1924–25, appear in 1930 Yearbook, table 43.

TABLE 42.—*Corn: Acreage, production, value, and foreign trade, United States, 1866–1934*

Year	Acreage harvested	Average yield per acre	Production		Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning November [2]	Foreign trade including meal year beginning July [3]			
			In grain equivalent on entire acreage	Harvested as grain				Domestic exports	Imports	Net exports [4]	
										Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1866	30,017	24.3	730,814				89	16,027	82	15,954	2.2
1867	32,116	24.7	793,905				88	12,494	50	12,446	1.6
1868	35,116	26.2	919,590				67	8,287	91	8,198	.9
1869			*760,945*								
1869	35,833	21.8	782,084				75	2,140	90	2,051	.3
1870	38,388	29.3	1,124,775				51	10,674	111	10,562	.9
1871	42,002	27.2	1,141,715				40	35,727	59	35,668	3.1
1872	43,584	29.4	1,279,369				35	40,154	63	40,091	3.1
1873	44,084	22.9	1,008,326				60	35,986	76	35,910	3.6
1874	47,640	22.2	1,058,778				68	30,025	39	29,986	2.8
1875	52,446	27.7	1,450,276				46	50,911	53	50,858	3.5
1876	55,277	26.7	1,478,173				45	72,653	33	72,620	4.9
1877	58,799	25.8	1,515,862				40	87,192	15	87,178	5.8
1878	59,659	26.2	1,564,537				34	87,885	37	87,848	5.6
1879	*62,369*	*28.1*	*1,754,592*								
1879	62,229	28.2	1,751,984				38	99,572	66	99,507	5.7
1880	62,545	27.3	1,706,673				46	93,648	76	93,572	5.5
1881	63,026	19.8	1,244,803				67	44,341	75	44,266	3.6
1882	66,157	26.5	1,755,272				55	41,656	38	41,617	2.4
1883	68,168	24.2	1,652,148				54	42,259	6	46,253	2.8
1884	68,834	28.3	1,947,838				43	52,876	5	52,872	2.7
1885	71,854	28.6	2,057,807				38	64,830	20	64,810	3.1
1886	73,911	24.1	1,782,767				38	41,369	31	41,337	2.3
1887	73,296	21.9	1,604,549				48	25,361	38	25,323	1.6
1888	77,474	29.1	2,250,632				35	70,842	3	70,839	3.1
1889	*72,088*	*29.4*	*2,122,328*								
1889	77,656	29.5	2,294,289				36	103,419	2	103,417	4.5
1890	74,785	22.1	1,650,446				58	32,042	2	32,039	1.9
1891	78,855	29.6	2,335,804				47	76,602	16	76,596	3.3
1892	76,914	24.7	1,897,412				41	47,122	2	47,120	2.5
1893	79,832	23.8	1,900,401				41	66,490	3	66,487	3.5
1894	80,069	20.2	1,615,016				44	28,585	17	28,569	1.8
1895	90,479	28.0	2,534,762				26	101,100	5	101,096	4.0
1896	89,074	30.0	2,671,048				25	178,817	7	178,811	6.7
1897	89,965	25.4	2,287,628				30	212,056	4	212,052	9.3
1898	87,784	26.8	2,351,323				34	177,255	4	177,252	7.5
1899	*94,914*	*28.1*	*2,666,324*								
1899	94,591	28.0	2,645,796				36	213,123	3	213,121	8.1
1900	94,852	28.1	2,661,978				43	181,405	5	181,400	6.8
1901	94,422	18.2	1,715,752				62	28,029	19	28,011	1.6

See footnotes at end of table.

TABLE 42.—*Corn: Acreage, production, value, and foreign trade, United States, 1866–1934*—Continued

Year	Acreage harvested	Average yield per acre	Production		Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning November [2]	Foreign trade including meal year beginning July [3]			
			In grain equivalent on entire acreage	Harvested as grain				Domestic exports	Imports	Net exports [4]	
										Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1902	97,177	28.5	2,773,954				47	76,639	41	76,598	2.8
1903	93,555	26.9	2,515,093				49	58,222	17	58,210	2.3
1904	95,228	28.2	2,686,624				48	90,293	16	90,278	3.4
1905	95,746	30.9	2,954,148				44	119,894	11	119,883	4.1
1906	95,624	31.7	3,032,910				50	86,368	11	86,358	2.8
1907	96,094	27.2	2,613,797				68	55,064	20	55,044	2.1
1908	95,285	26.9	2,566,742				65	37,665	258	37,437	1.5
1909	*98,383*	*25.9*	*2,552,190*								
1909	100,200	26.1	2,611,157				59	38,128	118	38,010	1.5
1910	102,267	27.9	2,852,794				53	65,615	53	65,562	2.3
1911	101,393	24.4	2,474,635				71	41,797	54	41,744	1.7
1912	101,451	29.1	2,947,842				53	50,780	903	49,913	1.7
1913	100,206	22.7	2,272,540				70	10,726	12,368	[5] 1,639	
1914	97,796	25.8	2,523,750				70	50,668	9,899	40,816	1.6
1915	100,623	28.1	2,829,044				79	39,897	5,211	34,761	1.2
1916	100,561	24.1	2,425,206				111	66,753	2,270	65,092	2.7
1917	110,893	26.2	2,908,242				163	49,073	3,197	45,950	1.6
1918	102,195	23.9	2,441,249				162	23,019	3,346	19,684	.8
1919 [6]	*87,772*	*26.7*		*2,345,835*							
1919	98,145	27.3	2,678,541	2,341,870	150.7	4,035,445	159	16,729	10,283	6,509	.2
1920	101,359	30.3	3,070,604	2,695,085	61.0	1,872,085	62	70,906	5,791	66,116	2.2
1921	103,155	28.4	2,928,442	2,556,924	52.7	1,544,722	55	179,490	142	179,374	6.1
1922	100,345	27.0	2,707,306	2,229,496	75.2	2,036,831	73	96,596	182	96,415	3.6
1923	101,123	28.4	2,875,292	2,429,551	83.5	2,400,513	88	23,135	240	22,896	.8
1924 [6]	*82,329*	*22.2*		*1,823,380*							
1924	100,420	22.9	2,298,071	1,899,751	105.3	2,420,928	106	9,791	4,618	5,348	.2
1925	101,331	28.2	2,853,083	2,413,364	69.9	1,995,031	75	24,783	637	24,150	.8
1926	99,452	25.9	2,574,511	2,133,404	75.3	1,938,403	87	19,819	1,098	18,731	.7
1927	98,357	27.2	2,677,671	2,249,926	84.9	2,273,599	101	19,409	5,463	14,364	.5
1928	100,336	27.1	2,714,535	2,282,938	84.3	2,288,041	92	41,874	490	41,387	1.5
1929 [6]	*83,162*	*25.6*		*2,130,752*							
1929	97,806	25.9	2,535,546	2,140,215	79.8	2,024,132	83	10,281	497	9,788	.4
1930	101,083	20.4	2,065,273	1,733,429	59.4	1,227,659	60	3,317	1,747	1,572	.1
1931	105,948	24.4	2,588,509	2,229,088	32.1	830,725	36	3,969	386	3,583	.1
1932	108,668	26.8	2,906,873	2,514,613	31.8	925,277	35	8,775	195	8,580	.3
1933	103,260	22.8	2,351,658	2,038,706	52.2	1,227,221	52	4,965	244	4,721	.2
1934 [7]	87,486	15.8	1,380,718	1,107,887	84.7	1,168,961					

[1] Calculations of average price and farm value not completed. Beginning with 1919 prices are weighted average prices for crop-marketing season.

[2] Prices 1866–67 to 1898–99 are averages of the weekly quotations for No. 2 or better in annual reports of Chicago Board of Trade; subsequent prices are compiled from the Chicago Daily Trade Bulletin, average of daily prices weighted by car-lot sales, No. 3 yellow.

[3] Compiled from Commerce and Navigation of the United States, 1866–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues 1919–26; January and June issues, 1927–34 and official records of the Bureau of Foreign and Domestic Commerce. Corn—General imports 1866–1909 and 1912–33; imports for consumption 1910 and 1911, and 1934. Corn meal—Imports for consumption, 1866–1934. Corn meal converted to terms of grain on the basis of 4 bushels of corn to a barrel of meal.

[4] Total exports (domestic plus foreign) minus total imports. Beginning 1933–34 net exports are domestic exports minus imports for consumption. (See introductory text.)

[5] Net imports, i. e., total imports minus total exports (domestic plus foreign).

[6] Corn harvested for grain; total acreage of corn in 1924 is 98,401,627 acres; 1929, 97,740,740 acres.

[7] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised. See introductory text. Italic figures are census returns.

TABLE 43.—*Corn: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	13	17	16	39.4	41.0	41.0	538	697	656	69	101
New Hampshire	13	15	15	42.5	40.0	41.0	562	600	615	77	104
Vermont	62	63	67	40.7	40.0	42.0	2,617	2,520	2,814	65	103
Massachusetts	41	38	37	42.5	40.0	41.0	1,686	1,520	1,517	80	92
Rhode Island	9	10	10	40.5	41.0	41.0	346	410	410	88	93
Connecticut	51	53	52	40.3	39.0	41.0	2,042	2,067	2,132	78	93
New York	567	571	617	34.1	31.0	34.5	19,072	17,701	21,286	65	91
New Jersey	172	167	166	40.4	37.0	43.0	6,581	6,179	7,138	66	87
Pennsylvania	1,232	1,280	1,216	40.0	39.5	43.5	45,570	50,560	52,896	62	84
North Atlantic	2,159	2,214	2,196	38.5	37.2	40.7	79,014	82,254	89,464	62.0	87.2
Ohio	3,489	3,364	2,927	36.2	33.5	31.5	121,397	112,694	92,200	50	79
Indiana	4,476	4,314	3,796	34.5	29.5	24.8	146,379	127,263	94,141	47	80
Illinois	8,965	8,324	7,159	35.2	27.0	20.5	302,578	224,748	146,760	50	83
Michigan	1,277	1,365	1,392	29.6	31.0	24.0	34,013	42,315	33,408	55	85
Wisconsin	2,006	2,228	2,384	32.8	35.0	31.0	64,895	77,980	73,904	53	80
Minnesota	4,461	4,846	4,507	31.0	29.5	17.0	134,848	142,957	76,619	44	83
Iowa	11,279	11,375	8,760	38.0	40.0	23.0	413,751	455,000	201,480	50	85
Missouri	6,088	6,019	4,815	26.6	23.5	5.5	150,699	141,446	26,482	45	100
North Dakota	1,028	1,334	1,401	21.5	15.0	3.5	20,200	20,010	4,904	43	93
South Dakota	4,977	3,873	2,827	21.3	10.6	4.5	95,748	41,054	12,722	47	96
Nebraska	9,506	10,431	6,676	24.1	22.5	3.2	230,002	234,698	21,363	41	97
Kansas	6,644	6,994	3,777	19.8	11.5	2.8	137,700	80,431	10,576	44	103
North Central	64,196	64,467	50,421	30.0	26.4	15.8	1,852,208	1,700,596	794,559	47.4	84.0
Delaware	138	145	141	27.8	25.0	34.5	3,782	3,625	4,864	60	79
Maryland	507	560	515	31.6	29.0	33.0	15,187	16,240	16,995	61	84
Virginia	1,502	1,571	1,461	22.9	23.5	24.5	33,611	36,918	35,794	68	85
West Virginia	439	464	441	26.4	30.0	27.5	11,290	13,920	12,128	69	86
North Carolina	2,139	2,392	2,440	18.6	18.5	19.5	40,713	44,252	47,580	73	87
South Carolina	1,490	1,573	1,730	14.0	14.5	12.0	21,215	22,808	20,760	75	93
Georgia	3,512	3,740	3,927	10.7	10.5	10.0	37,678	39,270	39,270	71	84
Florida	645	673	639	11.2	8.0	10.0	6,373	5,384	6,390	71	80
South Atlantic	10,372	11,118	11,294	16.5	16.4	16.3	169,848	182,417	183,781	70.1	85.8
Kentucky	2,900	2,727	2,618	23.2	25.0	24.0	63,954	68,175	62,832	58	79
Tennessee	2,854	2,810	2,641	21.2	23.5	22.3	58,880	66,035	58,893	60	79
Alabama	2,770	3,031	3,425	13.1	12.2	14.0	35,799	36,978	47,950	78	82
Mississippi	2,068	2,390	2,748	15.0	15.0	14.6	31,919	35,850	40,121	72	84
Arkansas	1,907	2,013	2,053	16.3	13.5	7.5	30,424	27,176	15,398	66	96
Louisiana	1,200	1,198	1,354	14.8	13.0	12.0	18,030	15,574	16,248	67	89
Oklahoma	3,162	2,861	2,117	16.4	7.5	5.5	53,843	21,458	11,644	55	96
Texas	4,683	5,422	5,097	16.7	13.8	9.0	81,615	74,824	45,873	62	93
South Central	21,544	22,452	22,053	17.4	15.4	13.6	374,463	346,070	298,960	63.7	84.4
Montana	134	215	133	14.6	11.5	5.0	1,933	2,472	665	57	98
Idaho	39	50	38	37.3	39.0	40.0	1,478	1,950	1,520	57	91
Wyoming	176	226	131	15.6	11.0	5.0	2,633	2,486	655	41	109
Colorado	1,614	2,004	842	14.0	11.0	4.0	24,119	22,044	3,368	40	102
New Mexico	244	238	136	14.2	14.0	8.0	3,747	3,332	1,088	57	110
Arizona	33	41	35	16.7	18.0	14.0	571	738	490	75	109
Utah	15	21	19	25.6	23.0	16.0	407	483	304	72	102
Nevada	2	2	2	23.7	22.0	20.0	48	44	40	73	109
Washington	33	41	34	35.9	38.0	33.0	1,233	1,558	1,122	58	83
Oregon	62	71	57	32.4	34.0	32.5	2,046	2,414	1,852	68	82
California	83	100	95	32.0	28.0	30.0	2,557	2,800	2,850	64	106
Western	2,435	3,009	1,522	16.3	13.4	9.2	40,773	40,321	13,954	48.4	98.5
United States	100,706	103,260	87,486	25.7	22.8	15.8	2,516,307	2,351,658	1,380,718	52.2	84.7

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 44.—*Corn: Utilization for grain, silage, hogging down, grazing, and forage, by States, 1933 and 1934*

State and division	1933					1934 [1]				
	For grain		For silage		Hogging down, grazing, and forage acreage	For grain		For silage		Hogging down, grazing, and forage acreage
	Acreage	Production	Acreage	Production		Acreage	Production	Acreage	Production	
	1,000 acres	*1,000 bushels*	*1,000 acres*	*1,000 short tons*	*1,000 acres*	*1,000 acres*	*1,000 bushels*	*1,000 acres*	*1,000 short tons*	*1,000 acres*
Maine	3	123	10	105	4	2	82	10	100	4
New Hampshire	3	120	10	115	2	3	123	10	107	2
Vermont	8	320	46	506	9	7	294	50	525	10
Massachusetts	9	360	21	231	8	9	369	20	220	8
Rhode Island	1	41	6	60	3	1	41	7	70	2
Connecticut	14	546	33	363	6	13	533	32	352	7
New York	124	3,844	357	3,213	90	113	3,898	377	3,582	127
New Jersey	130	4,810	30	264	7	131	5,633	28	280	7
Pennsylvania	967	38,196	250	2,250	63	920	40,020	231	2,310	65
North Atlantic	1,259	48,360	763	7,107	192	1,199	50,993	765	7,546	232
Ohio	3,048	103,632	111	755	205	2,631	84,192	103	824	193
Indiana	3,996	117,882	115	748	203	3,519	89,734	110	682	167
Illinois	7,700	207,900	250	1,375	374	6,207	133,450	372	1,786	580
Michigan	886	28,352	187	1,402	292	802	20,852	250	1,625	340
Wisconsin	927	33,372	1,083	8,231	218	680	22,440	1,198	8,386	506
Minnesota	3,260	96,170	480	3,600	1,106	2,119	46,618	816	3,672	1,572
Iowa	10,261	410,440	274	2,466	840	5,910	159,570	570	3,135	2,280
Missouri	5,417	130,008	60	360	542	1,444	11,552	241	651	3,130
North Dakota	133	2,128	148	370	1,053	28	210	196	196	1,177
South Dakota	2,203	31,944	189	378	1,481	441	4,983	142	199	2,244
Nebraska	9,866	221,985	95	428	470	1,669	10,014	734	1,101	4,273
Kansas	5,548	66,576	454	1,589	992	189	756	869	1,564	2,719
North Central	53,245	1,450,389	3,446	21,702	7,776	25,639	584,371	5,601	23,821	19,181
Delaware	140	3,500	3	26	2	136	4,692	3	28	2
Maryland	525	15,488	26	260	9	478	15,774	28	266	9
Virginia	1,501	35,274	46	460	24	1,381	33,834	60	510	20
West Virginia	428	13,268	26	221	10	398	11,144	25	250	18
North Carolina	2,300	42,550	12	66	80	2,366	46,137	14	77	60
South Carolina	1,537	22,286	3	12	33	1,707	20,484	3	11	20
Georgia	3,619	38,000	6	27	115	3,801	38,010	6	21	120
Florida	646	5,168	2	9	25	613	6,130	2	8	24
South Atlantic	10,696	175,534	124	1,081	298	10,880	176,205	141	1,171	273
Kentucky	2,624	65,600	16	120	87	2,475	59,400	17	119	126
Tennessee	2,745	64,508	14	91	51	2,581	57,556	12	78	48
Alabama	3,009	36,710	4	8	18	3,400	47,600	5	12	20
Mississippi	2,356	35,340	2	10	32	2,708	39,537	3	14	37
Arkansas	1,929	26,042	2	8	82	1,848	14,784	2	6	203
Louisiana	1,181	15,353	2	9	15	1,332	15,984	2	8	20
Oklahoma	2,434	18,255	14	42	413	1,681	10,086	13	32	423
Texas	5,251	72,464	8	22	163	4,382	43,820	11	22	704
South Central	21,529	334,272	62	310	861	20,407	288,767	65	291	1,581
Montana	34	408	5	10	176	10	160	2	3	121
Idaho	33	1,287	9	70	8	18	720	8	64	12
Wyoming	90	1,080	4	20	132	39	281	10	28	82
Colorado	1,783	20,504	64	320	157	337	2,022	90	225	415
New Mexico	186	2,604	3	21	49	102	918	3	12	31
Arizona	29	522	4	32	8	24	360	3	15	8
Utah	10	230	5	40	6	5	80	9	54	5
Nevada	1	22	1	8	0	1	20	1	7	0
Washington	16	608	9	86	16	15	495	8	80	11
Oregon	35	1,190	21	130	15	26	845	18	108	13
California	53	1,696	21	178	26	50	1,650	21	178	24
Western	2,270	30,151	146	915	593	627	7,551	173	774	722
United States	88,999	2,038,706	4,541	31,115	9,720	58,752	1,107,887	6,745	33,603	21,989

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

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TABLE 45.—*Corn: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1931–32 to 1934–35*

Country	Acreage					Yield per acre					Production				
	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]	Average 1921–22 to 1925–26	1931–32	1932–33	1934–33	1934–35[1]
NORTHERN HEMISPHERE															
North America:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	293	132	130	137	161	44.3	41.3	38.9	36.9	40.9	12,974	5,449	5,057	5,054	6,589
United States	101,275	105,948	108,668	103,260	87,486	27.0	24.4	26.8	22.8	15.8	2,732,439	2,588,509	2,906,873	2,351,658	1,380,718
Mexico	7,519	8,346	8,013	7,903	7,298	11.3	10.1	9.7	9.6	9.2	84,882	84,195	77,691	75,738	66,978
Guatemala	390	362	363	-------	-------	19.9	14.4	15.3	-------	-------	7,772	5,216	5,563	-------	-------
Total North American countries reporting area and production, all years	109,087	114,426	116,811	111,300	94,945	25.9	23.4	25.6	21.9	15.3	2,830,295	2,678,153	2,989,621	2,432,450	1,454,285
Estimated North American total	110,200	116,000	118,400	112,800	96,500	-------	-------	-------	-------	-------	2,849,000	2,704,000	3,015,000	2,460,000	1,482,000
Europe:															
France	830	855	840	832	822	17.8	28.8	19.2	20.6	24.9	14,754	24,622	16,115	17,122	20,449
Spain	1,167	1,053	1,102	1,067	-------	22.2	25.1	24.8	24.4	-------	25,933	26,388	27,286	25,997	-------
Portugal	762	939	930	-------	-------	15.5	18.7	15.5	-------	-------	11,795	17,563	14,442	12,283	-------
Italy	3,792	3,450	3,579	3,536	3,655	25.0	22.2	33.2	28.8	34.4	94,793	76,618	118,718	101,986	125,692
Austria	147	152	165	159	160	25.1	32.8	31.5	33.8	36.9	3,690	4,990	5,203	5,378	5,897
Czechoslovakia	390	344	331	316	359	26.8	26.1	36.8	19.0	27.1	10,444	8,965	12,176	6,018	9,728
Hungary	2,425	2,720	2,905	2,816	2,755	24.1	22.0	33.0	25.3	30.0	58,353	59,748	95,744	71,229	82,739
Yugoslavia	4,759	5,901	6,228	6,518	6,548	23.0	21.4	30.3	21.6	28.8	109,399	126,111	188,689	140,863	188,751
Greece	451	620	656	645	586	14.4	10.1	12.8	16.7	16.1	6,503	6,248	8,406	10,760	9,448
Bulgaria	1,458	1,682	1,839	1,796	1,658	14.4	20.8	19.0	20.8	19.5	21,021	34,988	34,899	37,440	32,262
Rumania	8,799	11,749	11,802	11,928	12,368	16.0	20.3	20.0	15.0	15.3	140,515	238,700	235,930	179,298	188,969
Poland	197	243	240	225	225	14.9	16.9	17.3	9.8	-------	2,926	4,099	4,163	2,200	-------
U. S. S. R., European and Asiatic	5,238	9,941	9,095	9,777	-------	21.3	18.8	14.8	19.3	-------	111,550	186,997	135,032	188,981	-------
Total European countries reporting area and production, all years	23,051	27,473	28,345	28,546	28,911	19.9	21.1	25.3	20.0	23.0	459,472	580,990	715,880	570,094	663,935
Estimated European total, excluding U. S. S. R.	25,200	29,900	30,900	30,800	31,200	-------	-------	-------	-------	-------	500,000	632,000	765,000	613,000	710,000
Africa:															
Kenya	105	161	164	113	123	23.9	16.9	24.8	23.6	28.9	2,507	2,724	4,070	2,667	3,554
Morocco	437	864	856	887	1,013	8.3	6.2	5.5	6.2	8.0	3,629	5,363	4,677	5,528	8,149
Egypt	1,988	2,194	2,043	1,638	1,629	34.8	35.6	37.2	35.5	37.5	69,096	78,201	76,053	58,101	61,020
Estimated African total	3,100	5,200	5,200	4,600	4,700	-------	-------	-------	-------	-------	84,000	110,000	107,000	88,000	94,000

Asia:															
Turkey	[2]866	903	830	942	778	[3]19.2	24.3	20.3	23.7	16.3	[3]20,606	21,904	16,810	22,324	12,692
India	6,570	7,059	6,892	6,267	.....	12.6	13.6	13.1	13.7	.....	82,482	96,040	90,520	85,760	.....
Philippine Islands	1,338	1,295	1,426	.....	.....	12.4	10.5	11.4	.....	.....	16,561	13,565	16,326	.....	.....
Manchuria	[2]2,132	2,441	2,422	2,723	.....	[3]37.2	27.4	25.1	25.4	.....	[4]60,014	66,969	60,699	69,243	63,382
Japan	141	114	111	.....	.....	25.9	30.0	19.7	.....	.....	3,655	3,417	2,186	.....	.....
Chosen	231	265	270	276	.....	12.2	11.7	12.7	12.8	.....	2,829	3,111	3,431	3,525	.....
Kwantung	162	246	249	.....	.....	17.1	21.1	23.0	.....	.....	2,771	5,184	5,715	.....	.....
Estimated Asiatic total	11,500	12,900	12,800	12,400	12,200	.....	.....	.....	.....	.....	192,000	221,000	207,000	215,000	266,000
Total Northern Hemisphere countries reporting area and production, all years	135,534	146,021	149,049	143,426	127,399	25.0	23.1	25.5	21.6	17.3	3,385,605	3,367,335	3,807,111	3,091,164	2,203,635
Estimated Northern Hemisphere total, excluding U. S. S. R.	150,000	164,000	167,300	160,600	144,600	.....	.....	.....	.....	.....	3,625,000	3,667,000	4,094,000	3,376,000	2,552,000
SOUTHERN HEMISPHERE															
Brazil	6,980	.....	.....	.....	.....	25.4	.....	.....	.....	.....	177,338	.....	.....	.....	.....
Chile	62	134	164	118	.....	23.6	22.0	19.8	22.5	.....	1,466	2,951	3,250	2,652	.....
Uruguay	470	483	519	508	.....	10.5	11.9	12.2	8.2	.....	4,919	5,759	6,340	4,185	.....
Argentina	8,063	9,518	9,373	9,721	.....	28.2	31.4	28.6	25.3	.....	227,393	299,329	267,761	246,049	.....
Union of South Africa:															
European	4,456	6,026	6,074	6,506	.....	9.1	9.1	3.5	7.7	.....	40,720	54,715	21,357	50,118	.....
Native	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16,170	13,264	8,432	16,236	.....
Southern Rhodesia [5]	223	253	253	.....	.....	18.3	26.6	16.3	.....	.....	4,079	6,724	4,115	.....	.....
Java and Madura	4,038	4,848	4,946	5,449	.....	14.4	15.5	15.1	15.0	.....	57,975	75,224	74,886	81,493	.....
Australia	326	269	228	.....	.....	26.5	26.3	22.2	.....	.....	8,641	7,062	5,066	.....	.....
Total Southern Hemisphere countries reporting area and production, all years	17,089	21,009	21,076	22,302	.....	19.5	20.8	17.7	17.2	.....	332,473	437,978	373,594	384,497	.....
Estimated Southern Hemisphere total	26,100	33,800	33,700	35,000	.....	.....	.....	.....	.....	.....	570,000	727,000	646,000	669,000	.....
Total Northern and Southern Hemisphere countries reporting area and production, all years through 1933–34	168,158	188,032	190,146	186,063	.....	23.8	22.3	23.7	20.7	.....	4,003,812	4,188,917	4,501,836	3,851,367	.....
Estimated world total, excluding U. S. S. R.	176,100	197,800	201,000	195,600	.....	.....	.....	.....	.....	.....	4,195,000	4,394,000	4,740,000	4,045,000	.....

[1] Preliminary.
[2] 2-year average.
[3] 1 year only.
[4] 3-year average.
[5] European cultivation only.

Bureau of Agricultural Economics. Official sources and International Institute of Agriculture. "U. S. S. R" means Union of Soviet Socialist Republics.
Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere in 1933 is combined with the Southern Hemisphere harvest which takes place early in 1934.

TABLE 46.—*Corn: Production, world and selected countries, 1900–1901 to 1934–35*

Crop year	Estimated world, excluding Russia	Estimated Europe, excluding Russia	Selected countries						
			United States	Argentina	Rumania	Yugoslavia	Italy	Brazil	Russia[1]
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1900–1901	3,750	445	2,662	99	85	18	88	-------	34
1901–2	2,865	497	1,716	84	117	19	100	-------	68
1902–3	3,841	391	2,774	149	68	18	71	-------	49
1903–4	3,722	459	2,515	175	80	19	89	-------	51
1904–5	3,663	279	2,687	141	20	9	90	-------	26
1905–6	4,110	403	2,954	195	59	21	97	-------	34
1906–7	4,230	533	3,033	72	131	28	93	-------	92
1907–8	3,862	441	2,614	136	58	18	88	-------	64
1908–9	3,811	465	2,567	177	79	21	96	-------	82
1909–10	3,985	499	2,611	175	70	34	102	-------	55
1910–11	4,118	564	2,853	28	104	29	104	-------	102
1911–12	3,838	502	2,475	296	111	27	95	-------	95
1912–13	4,271	547	2,948	197	104	-------	101	-------	94
1913–14	3,770	576	2,273	263	115	-------	111	-------	84
1914–15	4,041	559	2,524	325	103	-------	105	-------	[2] 90
1915–16	4,186	520	2,829	161	86	-------	122	-------	[3] 72
1916–17	3,635	389	2,425	59	-------	-------	82	204	[4] 62
1917–18	4,021	351	2,908	171	-------	-------	83	95	-------
1918–19	3,517	299	2,441	224	-------	-------	77	87	-------
1919–20	4,105	454	2,679	259	[5] 141	-------	86	197	-------
1920–21	4,551	519	3,071	230	182	[5] 101	89	186	46
1921–22	4,172	394	2,928	176	111	74	92	181	46
1922–23	4,044	424	2,707	176	120	90	77	202	118
1923–24	4,347	469	2,875	277	153	85	89	180	125
1924–25	3,886	589	2,298	186	155	149	106	162	92
1925–26	4,525	626	2,853	322	164	149	110	162	177
1926–27	4,358	653	2,575	321	230	134	118	164	136
1927–28	4,255	485	2,678	312	139	83	87	133	123
1928–29	4,244	384	2,715	252	109	72	65	194	130
1929–30	4,357	707	2,536	281	251	163	100	177	119
1930–31	3,954	612	2,065	420	178	136	118	200	105
1931–32	4,394	632	2,589	299	239	126	77	-------	187
1932–33	4,740	765	2,907	268	236	189	119	-------	135
1933–34	4,045	613	2,352	246	179	141	102	-------	189
1934–35 [6]	-------	710	1,381	-------	189	189	126	-------	-------

[1] Includes all Russian territory reporting for the years shown.

[2] Total Russian Empire, exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.

[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and the Ukraine, and the Provinces of Batum and Elizabetpol in Transcaucasia.

[4] Beginning this year, estimates within present boundaries of the Union of Soviet Socialist Republics, exclusive of Turkestan, Transcaucasia, and the Far East, which territory in 1924–25 produced 26,048,000 bushels.

[5] Production in present boundaries beginning this year, therefore not comparable with earlier years.

[6] Preliminary.

Bureau of Agricultural Economics. Official sources and International Institute of Agriculture.

Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which takes place early in 1934.

TABLE 47.—*Corn: Stocks on farms, quarterly, United States, 1926–35*

Year	Stocks on farms				Year	Stocks on farms			
	Jan. 1	Apr. 1	July 1	Oct. 1[1]		Jan. 1	Apr. 1	July 1	Oct. 1[1]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*		*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926	-------	980,489	535,978	262,910	1931	1,118,424	625,086	312,389	160,460
1927	1,459,153	870,624	444,058	191,679	1932	1,556,349	913,666	527,374	250,978
1928	1,446,780	715,281	291,791	87,531	1933	1,813,479	1,128,122	630,849	317,863
1929	1,435,316	780,896	396,267	146,719	1934	1,433,740	841,498	474,370	266,740
1930	1,389,764	750,223	349,481	131,845	1935	814,017	438,180	-------	-------

[1] Includes old crop only.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 48.—*Corn: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1924–25 to 1933–34*

Year	Percentage of receipts during—												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
	Per-cent	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*	*Per-cent*
1924–25	7.0	11.1	13.0	13.6	9.5	8.1	6.3	7.8	4.3	6.6	6.2	6.5	100.0
1925–26	5.9	9.3	14.6	12.1	10.4	8.5	5.3	7.1	8.2	5.1	7.6	5.9	100.0
1926–27	10.1	9.1	12.9	11.7	10.8	6.9	4.8	6.1	9.1	5.7	6.2	6.6	100.0
1927–28	6.2	8.6	15.5	13.8	11.7	8.9	5.4	6.6	5.4	5.1	6.5	6.3	100.0
1928–29	6.6	12.5	16.7	12.9	11.5	7.4	3.8	4.3	7.3	5.8	5.8	5.4	100.0
1929–30	6.9	9.3	13.4	10.9	10.6	7.4	7.1	6.9	6.3	6.6	7.0	7.6	100.0
1930–31	7.7	10.5	14.0	11.0	10.2	8.2	7.0	5.8	6.5	6.5	7.3	5.3	100.0
1931–32	7.6	9.9	11.2	10.2	10.4	7.6	7.4	6.4	5.4	6.2	8.6	9.1	100.0
1932–33	8.3	8.1	8.9	8.0	7.4	5.1	8.4	9.1	10.3	12.4	6.2	7.8	100.0
1933–34	8.8	10.9	9.6	8.0	6.5	6.7	3.6	5.1	6.4	10.8	14.8	8.8	100.0

Bureau of Agricultural Economics. Data for earlier years in 1928 yearbook, table 51.

TABLE 49.—*Corn, shelled: Receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1924–25 to 1933–34*

Year beginning November	Grade							Total
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1924–25	7,883	80,883	56,542	34,431	31,370	17,252	12,345	240,706
1925–26	3,358	59,985	62,757	51,092	48,348	40,116	31,473	297,129
1926–27	1,616	34,390	57,931	48,217	50,195	46,180	31,171	269,700
1927–28	9,682	87,801	78,352	47,890	34,638	27,553	29,006	314,922
1928–29	25,809	92,285	73,331	93,367	40,594	10,400	7,247	343,033
1929–30	26,394	85,038	49,806	50,916	39,995	19,475	16,580	288,204
1930–31	18,176	67,781	70,928	45,629	14,745	5,262	3,745	226,266
1931–32	15,469	91,136	53,076	22,756	3,987	3,159	2,465	192,048
1932–33	12,217	129,825	63,005	29,343	6,487	7,218	6,632	254,727
1933–34	39,099	117,613	47,066	14,113	3,953	2,592	3,064	227,500

Bureau of Agricultural Economics.

TABLE 50.—*Corn: Commercial stocks, 1926–27 to 1934–35*

DOMESTIC CORN IN UNITED STATES [1]

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	-------	-------	-------	36,019	40,670	47,515	49,759	39,010	31,607	36,268	31,782	23,324
1927–28	24,913	21,661	20,254	28,741	34,558	44,786	48,273	36,835	27,497	17,650	13,571	9,768
1928–29	6,894	2,032	6,353	18,565	28,797	36,927	37,744	28,863	15,951	13,740	9,076	6,340
1929–30	4,421	3,639	2,982	10,513	16,079	24,944	25,671	21,073	11,463	7,049	3,421	4,220
1930–31	4,855	4,550	7,332	17,190	17,383	20,127	22,167	19,697	12,337	8,175	8,363	9,066
1931–32	5,586	7,341	9,803	12,664	14,176	18,528	22,693	22,032	20,903	16,117	11,144	14,739
1932–33	18,705	27,973	26,537	30,633	33,855	36,868	36,151	31,958	38,780	48,618	63,274	57,764
1933–34	59,791	62,709	65,053	70,540	68,946	69,424	66,314	57,343	46,257	38,312	45,504	61,373
1934–35	63,803	58,482	50,166	-------	-------	-------	-------	-------	-------	-------	-------	-------

UNITED STATES CORN IN CANADA [2]

1926–27	-------	-------	-------	2,147	1,715	1,788	1,403	1,781	1,452	1,184	1,706	1,188
1927–28	2,010	1,994	2,263	1,891	1,598	1,312	976	626	1,634	1,337	818	510
1928–29	534	252	268	580	737	601	356	1,759	1,602	911	746	480
1929–30	763	847	375	230	180	152	120	428	745	697	135	147
1930–31	950	750	723	571	481	423	378	476	995	176	195	557
1931–32	500	1,143	1,106	918	884	872	843	1,051	992	817	549	759
1932–33	2,826	3,399	4,211	3,799	3,017	2,221	1,562	1,387	2,809	3,326	7,116	7,076
1933–34	7,707	10,065	10,830	10,159	8,866	7,822	6,839	5,829	3,647	2,833	3,021	5,809
1934–35	6,026	6,297	6,047	-------	-------	-------	-------	-------	-------	-------	-------	-------

[1] Includes domestic corn in store in public and private elevators in 41 markets and corn afloat in vessels or barges in harbors of lake and seaboard ports. Does not include corn in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of corn intended for local use.

[2] Includes United States corn in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include corn in transit to Canadian ports.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data for domestic corn in the United States are for stocks on the Saturday nearest the first day of the month: for United States corn in Canada data are for stocks on the Friday nearest the 1st day of the month

TABLE 51.—*Corn: Supply and distribution in continental United States, 1926–27 to 1934–35*

Year beginning October	Supply						Distribution		
	Production	Stocks on farms Oct. 1	Farm supply Oct. 1	Commercial stocks Oct. 1 [1]	Total stocks Oct. 1	Total supply Oct. 1	Net exports [2]	Disappearance	Stocks end of year
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1000 bushels*	*1,000 bushels*
1926–27	2,574,511	262,910	2,837,421	18,999	281,909	2,856,420	14,341	2,625,487	216,592
1927–28	2,677,671	191,679	2,869,350	24,913	216,592	2,894,263	17,619	2,782,219	94,425
1928–29	2,714,535	87,531	2,802,066	6,894	94,425	2,808,960	41,399	2,616,421	151,140
1929–30	2,535,546	146,719	2,682,265	4,421	151,140	2,686,686	8,119	2,541,867	136,700
1930–31	2,065,273	131,845	2,197,118	4,855	136,700	2,201,973	1,733	2,034,194	166,046
1931–32	2,588,509	160,460	2,748,969	5,586	166,046	2,754,555	4,058	2,480,814	269,683
1932–33	2,906,873	250,978	3,157,851	18,705	269,683	3,176,556	8,713	2,790,189	377,654
1933–34	2,351,658	317,863	2,669,521	59,791	377,654	2,729,312	3,930	2,394,839	330,543
1934–35	1,380,718	266,740	1,647,458	63,803	330,543	1,711,261			

[1] For Oct. 1, 1926, Bradstreets' visible supply.
[2] Includes corn meal.

Bureau of Agricultural Economics.

TABLE 52.—*Corn: Weighted average price per bushel of reported cash sales, Chicago, Kansas City, and six markets combined, 1925–26 to 1934–35*

Grade, market, and year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Weighted average
No. 3 Yellow, Chicago:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	83	76	79	75	72	71	71	70	78	80	79	77	75
1926–27	71	75	74	73	68	71	87	99	102	109	97	84	87
1927–28	84	86	89	95	99	106	108	103	106	102	100	96	101
1928–29	84	83	93	94	94	90	87	91	99	101	101	95	92
1929–30	88	88	85	82	80	82	79	79	82	99	94	82	83
1930–31	71	69	65	61	60	58	56	58	57	46	42	38	60
1931–32	43	37	37	34	33	32	31	30	32	32	30	26	36
1932–33	25	23	24	23	26	34	42	43	56	51	47	40	35
1933–34	44	47	50	49	49	47	51	58	64	76	80	78	52
1934–35	83	93											
No. 3 Yellow, Kansas City:													
1925–26	75	74	75	70	67	69	71	72	81	83	80	77	74
1926–27	74	75	74	72	73	73	91	97	103	105	96	83	88
1927–28	79	78	81	86	91	97	105	102	100	94	94	86	85
1928–29	82	79	87	87	88	85	85	88	93	99	99	92	85
1929–30	87	84	82	78	76	80	78	80	80	92	89	82	80
1930–31	69	66	59	54	54	53	52	52	53	45	46	40	55
1931–32	46	39	39	36	34	34	34	33	35	33	29	24	37
1932–33	24	22	23	22	26	33	39	40	52	50	44	38	38
1933–34	43	43	45	45	45			57		78	81	80	
1934–35	91	96											
6 markets, all classes and grades: [1]													
1925–26	71.0	68.3	69.5	63.2	64.6	66.4	68.0	66.9	76.3	78.3	76.5	73.2	69.0
1926–27	67.3	65.9	65.2	62.7	60.9	67.0	83.0	91.5	96.7	104.2	92.2	79.9	75.8
1927–28	78.7	77.0	78.6	84.1	89.6	98.2	104.0	100.8	102.7	96.8	97.5	89.3	89.2
1928–29	79.8	78.4	87.1	89.5	89.0	86.9	84.6	89.7	98.1	99.9	100.0	93.8	88.5
1929–30	81.0	79.1	77.7	75.9	73.5	80.2	78.5	77.8	80.6	97.6	93.2	80.3	80.3
1930–31	67.8	64.1	61.0	57.2	56.8	56.3	54.4	55.3	56.9	46.7	42.4	38.0	56.9
1931–32	43.5	37.1	37.0	34.2	33.1	32.6	31.9	30.7	32.4	32.1	29.8	25.6	33.2
1932–33	24.8	22.6	23.1	22.4	25.4	33.6	40.7	41.7	54.8	50.4	46.7	39.9	37.8
1933–34	43.6	45.3	47.9	47.2	48.1	46.2	52.9	58.3	63.7	76.7	80.4	79.3	56.6
1934–35	86.3	95.5											

[1] Compiled from daily trade papers of markets named. The markets are Chicago, St. Louis, Omaha, Kansas City, Minneapolis, and Cincinnati (not included since November 1928). The prices in this section of the table are comparable with prices paid to producers in that the latter are averages of the several prices reported which cover all classes and grades sold by producers.

Bureau of Agricultural Economics, computed by weighing selling price by number of car lots sold as reported in Chicago Daily Trade Bulletin and Kansas City Grain Market Review. Chicago prices for earlier years in 1928 Yearbook, table 60.

TABLE 53.—*Corn: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	83.0	74.6	70.7	69.6	68.5	66.6	65.7	67.1	68.6	71.5	79.5	76.2	69.9
1926–27	74.5	66.0	64.5	64.3	66.5	65.2	65.6	73.0	88.9	92.4	97.7	95.3	75.3
1927–28	87.6	73.7	75.1	75.2	79.0	86.2	91.9	102.5	102.2	102.4	98.2	95.1	84.9
1928–29	84.7	75.4	76.1	80.2	86.8	88.7	87.5	86.2	86.9	91.2	95.9	97.2	84.3
1929–30	91.9	81.0	78.0	77.3	77.4	74.5	78.3	77.7	79.0	77.1	90.0	91.7	79.8
1930–31	81.9	66.3	64.9	61.7	58.6	57.5	57.7	56.3	53.8	54.0	50.8	43.2	59.4
1931–32	33.4	36.6	34.5	33.7	32.4	32.2	31.4	30.1	29.4	29.9	30.2	28.0	32.1
1932–33	21.6	19.4	18.8	19.1	19.4	20.6	28.2	38.9	40.2	55.4	48.8	46.5	31.8
1933–34	38.8	40.6	42.0	43.9	45.6	47.1	47.1	48.6	56.0	59.2	72.7	77.4	52.2
1934–35	76.7	75.7	85.3	------	------	------	------	------	------	------	------	------	[1] 84.7

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State prices averages for the crop-marketing season. Data for earlier years in 1928 yearbook, table 59. Only monthly prices are comparable.

TABLE 54.—*Corn, yellow, La Plata: Average spot price per bushel at Buenos Aires and Liverpool, 1925–26 to 1934–35*

BUENOS AIRES

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	84	86	79	73	66	71	68	68	68	69	65	60	72
1926–27	55	55	60	63	63	62	66	69	69	76	77	76	66
1927–28	76	83	90	98	102	89	90	91	90	85	86	95	90
1928–29	97	93	98	96	90	85	79	81	90	87	87	85	89
1929–30	75	72	65	62	59	60	59	56	54	56	50	43	59
1930–31	34	33	29	31	35	33	30	30	30	26	24	25	30
1931–32	32	28	27	30	33	31	29	30	31	32	32	30	30
1932–33	28	26	29	28	27	27	30	31	37	35	37	34	31
1933–34	38	37	39	43	47	40	40	43	47	61	58	52	45
1934–35	51	56	49	------	------	------	------	------	------	------	------	------	------

LIVERPOOL

1925–26	107	110	98	91	89	94	91	87	100	99	90	93	96
1926–27	95	92	89	93	88	88	94	91	91	98	97	96	93
1927–28	97	104	110	119	127	129	127	125	130	119	106	115	117
1928–29	123	120	125	127	124	121	107	104	117	113	107	103	116
1929–30	96	89	83	79	75	91	85	76	84	90	77	63	82
1930–31	52	54	48	49	58	61	57	50	47	44	41	39	50
1931–32	44	37	39	42	46	47	46	42	43	43	42	39	42
1932–33	37	37	41	40	40	40	44	44	50	46	47	46	43
1933–34	56	63	59	56	62	61	56	57	60	75	72	64	62
1934–35	63	65	63	56	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Compiled as follows: Buenos Aires, Boletin Oficial de la Bolso de Comercio de Buenos Aires, averages of daily quotations, converted at monthly average rates of exchange as given in Federal Reserve Bulletin; Liverpool, Broomhall's Corn Trade News, averages of Tuesday quotations through Feb. 19, 1929. Beginning Feb. 27, 1929, Wednesday quotations were used. Converted at monthly average rates of exchange as given in Federal Reserve Bulletin, except for period January 1926 to August 1931, when par of exchange was used. Data for earlier years in 1928 Yearbook, tables 62 and 63.

TABLE 55.—*Corn: Volume of trading in futures at contract markets, by markets and by crop years, 1924–25 to 1933–34, and monthly for 1934*

Year and month	Chicago Board of Trade	Chicago Open Board	Kansas City	St. Louis	Milwaukee	Minneapolis [1]	Omaha [2]
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1924–25	6,363.1	124.6	282.6	52.4	18.3		
1925–26	3,862.7	96.4	161.1	18.4	14.5		
1926–27	5,981.6	158.7	200.7	24.4	28.5		
1927–28	6,588.9	175.0	290.1	22.5	38.7		
1928–29	4,924.4	144.4	247.1	11.9	32.7		
1929–30	3,799.1	94.9	208.1	4.7	27.1		0.2
1930–31	4,318.4	173.0	208.9	3.5	23.9	9.9	.9
1931–32	1,795.6	42.9	56.9	1.1	8.7		1.0
1932–33	3,351.4	55.4	165.0		13.8		
1933–34	3,086.4	44.3	169.9		13.6		
1934							
January	110.3	2.2	6.6		.5		
February	65.6	1.0	3.1		.5		
March	68.2	.9	4.3		.5		
April	208.6	1.7	12.8		1.3		
May	244.7	3.2	9.1		.9		
June	360.5	4.4	14.4		2.0		
July	411.8	3.3	23.5		1.5		
August	555.4	5.2	39.0		2.0		
September	226.2	2.2	13.0		1.4		
October	276.6	2.4	16.2		1.0		
November	354.5	2.4	20.2		1.2		
December	310.9	2.7	17.0		1.3		

[1] Trading in corn futures at Minneapolis began Jan. 30, 1922, was discontinued July 31, 1923, and resumed Jan. 31, 1931.

[2] Trading at Omaha began June 16, 1930, and was suspended Dec. 7, 1932.

Grain Futures Administration.

TABLE 56.—*Corn: Volume of trading in futures at all contract markets, by months and crop years, 1924–25 to 1934–35*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1924–25	557	707	710	677	810	670	510	566	463	394	442	335	6,841
1925–26	317	514	302	236	317	292	237	343	448	439	368	340	4,153
1926–27	383	395	261	288	429	313	692	921	575	713	836	588	6,394
1927–28	473	681	511	698	733	745	699	567	553	616	372	467	7,115
1928–29	457	420	690	373	416	466	526	475	520	453	296	269	5,361
1929–30	261	199	196	252	328	283	290	322	498	611	433	461	4,134
1930–31	418	649	600	474	370	380	346	265	381	373	238	246	4,740
1931–32	361	209	119	156	142	204	110	102	98	178	122	106	1,907
1932–33	145	99	74	50	87	291	544	631	816	288	202	359	3,586
1933–34	310	212	120	70	74	224	258	381	440	602	243	296	3,230
1934–35	378	332											

Grain Futures Administration.

TABLE 57.—*Corn: Wet-process grindings, 1918–19 to 1934–35*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1918–19	6,398	6,029	6,247	4,940	4,602	5,119	6,023	6,035	4,418	4,619	6,306	6,377	67,113
1919–20	5,207	5,044	7,282	5,847	7,051	3,875	5,509	6,367	6,495	6,001	4,192	3,679	66,549
1920–21	2,292	2,069	2,934	3,683	4,163	3,456	4,887	4,577	4,195	5,772	6,092	6,569	50,689
1921–22	6,174	6,001	5,179	5,946	6,685	4,271	4,705	5,323	5,294	5,650	6,108	6,733	68,069
1922–23	6,403	4,557	5,530	5,336	5,946	5,270	6,084	5,278	4,080	5,390	5,577	6,424	65,875
1923–24	5,576	5,668	6,757	7,152	7,835	6,437	5,027	5,621	5,835	6,433	6,368	6,926	75,635
1924–25	5,433	5,520	6,751	6,199	5,672	5,240	4,983	5,498	4,430	5,567	5,902	7,037	68,232
1925–26	6,497	6,488	7,843	7,218	8,052	6,100	5,974	6,733	6,749	7,289	6,800	7,604	83,347
1926–27	6,404	5,455	6,618	6,511	7,336	6,851	6,365	7,299	6,727	7,309	7,561	8,612	83,048
1927–28	8,064	6,301	8,330	8,339	9,244	8,285	6,921	6,428	5,833	5,192	6,541	7,725	87,203
1928–29	7,535	6,550	8,364	8,719	7,085	6,044	6,338	6,696	6,560	7,673	7,913	8,721	88,198
1929–30	6,453	6,054	7,622	6,568	6,065	6,615	6,623	6,100	6,103	6,561	6,473	6,253	77,490
1930–31	5,435	5,241	5,990	5,575	5,441	5,492	5,580	5,738	5,168	4,664	5,912	6,318	66,554
1931–32	6,348	4,630	5,130	5,344	5,045	4,687	4,921	4,552	4,343	5,165	5,981	5,856	62,002
1932–33	5,569	5,167	5,758	5,022	5,830	7,116	8,863	5,473	6,511	5,845	4,533	6,142	71,829
1933–34	8,952	4,801	4,421	5,020	5,938	4,953	5,524	6,997	5,983	6,792	5,017	5,501	69,899
1934–35	4,261												

Bureau of Agricultural Economics.

Compiled from reports of the Corn Refiners' Statistical Bureau and the Corn Industries Research Foundation.

TABLE 58.—*Corn, including corn meal in terms of grain: International trade, average 1925–26 to 1929–30, annual 1930–31 to 1933–34*

Country	Year beginning July									
	Average 1925–26 to 1929–30		1930–31		1931–32		1932–33		1933–34 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Argentina	220,588	0	274,044	0	386,849	0	206,902	0	218,542	0
Rumania	30,906	[2] 21	38,301	1	54,363	3	[3] 67,919	([3])		
United States	23,233	1,637	3,317	1,747	3,969	386	8,775	195	4,965	[4] 244
Union of South Africa	19,446	376	21,880	30	10,998	27	16,786	25	148	1,269
Yugoslavia	[5] 8,534		14,923		3,467		16,369		23,260	
Netherlands Indies [6]	4,876	13	4,728	18	6,555	20	6,808	15	[7] 11	[7] 3,127
Hungary	4,043	508	628	3,275	123	2,665	5,386	894	4,048	0
Bulgaria	3,828		7,744		4,721		5,785		4,189	
Union of Soviet Socialist Republics	3,674	0	2,478	0	10,897	0	8,491	0	5,125	0
Indo-China	3,554	0	4,823	0	4,400	0	8,486	0	[8] 11,969	0
Egypt	1,786	276	14	274	15	499	369	18	31	23
China [6]	1,040	0	1,063	0	1,560	0	[9] 533	[9] 8	2	43
Uruguay [6]	561	[5] 406	632	225	310		2			
British India	227	0	2	0	4	0	4	0	17	0
Total	326,296	3,237	374,577	5,570	488,231	3,600	352,615	1,155	272,307	4,706
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	2,512	71,650	2,595	83,280	3,183	114,684	302	109,589	366	112,849
Netherlands	738	44,523	863	48,785	518	69,910	223	58,945	33	43,505
Germany	23	42,826	2	17,320	0	29,723	1	17,744	0	10,493
France	69	27,349	126	36,788	124	46,513	16	40,422	42	26,045
Belgium	1,080	24,268	1,589	27,224	2,992	35,421	2,318	32,194	2,185	28,756
Italy	42	23,942	16	25,256	12	34,747	1,694	9,718	2,073	6,603
Denmark		18,676		14,856		40,162		28,821		10,199
Irish Free State	124	16,159	63	20,679	44	28,041		16,446		10,854
Canada	58	13,645	42	9,819	113	8,701	181	7,442	171	6,585
Spain	0	13,003	0	5,176	2	10,617	0	5,499	1	2,888
Czechoslovakia	5	12,088	3	16,868	2	24,818	0	6,122	1	8,342
Austria	20	6,593	17	8,214	6	14,299	4	17,738	7	20,514
Sweden		5,112		8,146		13,535		9,373		9,288
Switzerland	0	5,099	2	5,202	6	7,117	3	5,070	1	2,935
Norway		4,588		6,101		7,556		6,276		5,816
Mexico [6]	[5] 3	[5] 2,108	0	3,122	0	737	0	1	0	5
Poland	22	2,008	0	862	1	421	0	183	0	168
Cuba	0	1,974	0	190	0	8	0		0	
Japan	0	[5] 1,702	0	2,776	0	3,846	0	78	0	14
Greece	0	886	0	540	0	6,105	0	1,114	0	175
Australia	91	602	2	4	3	0	2	5		
Tunis	17	424	15	647	0	634	1	2	35	182
Algeria	14	214	4	183	27	427	7	229	55	92
Finland	0	190	0	346	0	941	0	1,668	0	3,128
Total	4,818	339,629	5,339	342,384	7,033	498,963	4,752	374,679	4,970	309,436

[1] Preliminary.
[2] 1 year only.
[3] Monthly Crop Report and Agricultural Statistics, International Institute of Agriculture.
[4] Imports for consumption.
[5] 4-year average.
[6] Calendar year.
[7] Java and Madura only.
[8] 11 months' figure.
[9] Beginning July 1, 1932, figures do not include Manchuria.

Bureau of Agricultural Economics; official sources except where otherwise noted. Maicena or maizena is included with "corn and corn meal."

TABLE 59.—*Corn: Sales of certain products of the wet-process industry, 1927–34*

Calendar year	Cornstarch	Corn sugar	Corn sirup mixed and unmixed	Dextrines	Corn oil		Feed	
					Crude	Refined	Gluten feed and meal	Corn-oil meal
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 short tons*	*1,000 short tons*
1927	906,476	896,739	1,064,821	103,340	39,524	67,511	648	38
1928	838,605	968,601	1,106,957	110,169	43,507	74,153	659	40
1929	879,560	894,986	1,111,153	114,486	53,661	78,913	634	27
1930	710,525	849,315	1,025,970	89,720	40,004	77,924	576	25
1931	635,974	802,052	929,342	79,136	41,076	71,537	479	21
1932	529,329	776,854	794,926	62,122	35,127	76,437	542	18
1933	741,854	836,650	1,000,941	86,222	37,246	81,153	508	23
1934	666,869	633,233	996,172	69,947	42,400	87,109	599	21

Bureau of Agricultural Economics; compiled from reports of the Corn Refiners' Statistical Bureau.

TABLE 60.—*Oats: Acreage, production, value, and foreign trade, United States, 1866–1934*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning Aug. 1 [2]	Foreign trade, including meal, year beginning July [3]			
							Domestic exports	Imports	Net exports [4]	
									Total	Percent of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1866	7,935	29.3	232,360				826	790	1,199	0.5
1867	8,176	27.2	222,605				123	986	[5] 825	
1868	8,897	25.8	229,676			54	482	478	63	[6]
1869			*232,107*							
1869	9,555	29.7	284,004			44	122	2,602	[5] 2,403	
1870	10,348	25.9	267,947			43	148	890	[5] 737	
1871	11,061	27.7	306,218			32	263	927	[5] 665	
1872	11,789	27.7	326,759			26	714	287	428	.1
1873	12,010	25.6	306,906			39	813	192	621	.2
1874	12,775	21.3	272,501			53	505	1,500	[5] 995	
1875	13,616	26.8	364,967			33	1,466	261	1,221	.3
1876	14,589	22.4	327,212			34	2,854	153	2,703	.8
1877	14,816	29.4	435,330			24	3,715	104	3,633	.8
1878	15,830	28.0	443,365			23	5,452	63	5,390	1.2
1879	*16,145*	*25.3*	*407,859*							
1879	15,955	26.0	415,440			29	766	537	234	.1
1880	16,414	25.5	417,942			33	403	115	290	.1
1881	16,916	26.4	446,125			46	626	1,932	[5] 1,307	
1882	19,075	28.3	540,462			38	461	885	[5] 419	
1883	20,621	29.4	605,576			30	3,275	121	3,157	.5
1884	21,974	29.1	640,520			28	6,203	94	6,109	1.0
1885	23,351	28.9	674,151			28	7,311	149	7,231	1.1
1886	24,426	27.9	682,312			26	1,375	140	1,235	.2
1887	26,272	26.5	696,175			29	573	124	455	.1
1888	27,807	27.8	773,139			24	1,191	132	1,060	.1

[1] Calculations of average price and farm value not completed. Beginning with 1919 prices are weighted average prices for crop-marketing season.

[2] Compiled as follows: September 1868–July 1899, Chicago Board of Trade annual reports, average of weekly quotations for No. 2; beginning August 1899, Chicago Daily Trade Bulletin, average of daily quotations for No. 3, white, weighted by car-lot sales.

[3] Compiled from Commerce and Navigation of the United States, 1866–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34; and official records of the Bureau of Foreign and Domestic Commerce. Oats—general imports, 1866–1933, imports for consumption 1934; oatmeal—general imports, 1866–68 and 1884–1909; imports for consumption 1869–83 and 1910–34. No exports of oatmeal reported 1866–84.

[4] Total exports (domestic plus foreign) minus total imports. Beginning 1933–34 net exports are domestic exports minus imports for consumption. (See introductory text.)

[5] Net imports. Total imports minus total exports (domestic plus foreign).

[6] Less than 0.05 percent.

TABLE 60.—*Oats: Acreage, production, value, and foreign trade, United States, 1866–1934*—Continued

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning Aug. 1 [2]	Foreign trade, including meal, year beginning July [3]			
							Domestic exports	Imports	Net exports [4]	
									Total	Percent of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1889	*28,321*	*28.6*	*809,251*							
1889	28,697	29.0	831,047			23	15,107	153	14,969	1.8
1890	28,275	21.5	609,122			43	1,383	42	1,341	.2
1891	27,756	30.1	836,789			30	10,587	48	10,546	1.3
1892	28,168	25.6	721,824			31	2,701	49	2,655	.4
1893	29,266	24.2	707,129			31	6,290	32	6,258	.9
1894	29,556	25.4	750,009			29	1,709	330	1,379	.2
1895	30,905	29.9	924,858			18	15,157	67	15,117	1.6
1896	30,248	25.6	774,929			17	37,725	131	37,613	4.9
1897	28,829	28.8	829,525			23	73,880	25	73,855	8.9
1898	29,327	28.7	842,205			25	33,534	28	33,506	4.0
1899	*29,540*	*31.9*	*943,389*							
1899	29,254	32.0	937,173			24	45,049	55	44,095	4.7
1900	31,049	30.5	945,483			26	42,269	32	42,237	4.5
1901	30,891	25.9	799,812			43	13,278	39	13,240	1.7
1902	31,358	34.3	1,076,899			34	8,382	150	8,233	.8
1903	32,187	27.5	885,469			38	1,961	184	1,857	.2
1904	32,749	30.9	1,011,556			32	8,395	56	8,339	.8
1905	33,426	33.0	1,104,395			31	48,435	40	48,395	4.4
1906	33,688	30.4	1,022,715			37	6,386	91	6,379	.6
1907	34,439	23.3	801,144			50	2,519	383	2,195	.3
1908	34,310	24.2	829,308			52	2,334	6,692	[5] 4,252	
1909	*35,159*	*28.6*	*1,007,143*							
1909	35,062	28.9	1,013,909			42	2,549	1,063	1,704	.2
1910	36,844	30.0	1,106,162			33	3,846	140	3,707	.3
1911	37,149	23.8	885,527			50	2,678	2,660	30	([6])
1912	37,244	36.3	1,353,273			35	36,455	765	35,695	2.6
1913	37,245	27.9	1,039,131			40	2,749	22,333	[5] 18,858	
1914	37,213	28.7	1,066,328			50	100,609	670	100,158	9.4
1915	38,802	37.0	1,435,270			41	98,960	720	98,648	6.9
1916	39,098	29.1	1,138,969			54	95,106	841	94,348	8.3
1917	41,604	34.7	1,442,519			71	125,091	2,915	122,273	8.5
1918	42,464	33.6	1,428,611			70	109,005	838	108,167	7.6
1919	*37,991*	*27.8*	*1,055,183*							
1919	39,601	27.9	1,106,603	76.7	848,534	80	43,436	6,077	37,365	3.4
1920	42,732	33.8	1,444,291	53.8	776,913	51	9,391	3,827	5,831	.4
1921	45,539	23.0	1,045,270	32.2	336,603	35	21,237	1,824	19,422	1.9
1922	40,324	28.5	1,147,905	37.4	429,354	41	25,413	340	25,087	2.2
1923	40,245	30.5	1,227,184	40.7	499,701	45	8,796	4,271	4,550	.4
1924	*37,650*	*34.7*	*1,304,599*							
1924	41,857	34.0	1,424,422	47.8	680,378	50	16,777	3,067	13,926	1.0
1925	44,240	31.9	1,410,336	38.8	547,212	41	39,687	212	39,565	2.8
1926	42,854	26.6	1,141,941	40.1	457,766	43	15,041	135	14,988	1.3
1927	40,350	27.1	1,093,097	47.1	515,277	55	9,823	233	9,611	.9
1928	40,128	32.9	1,318,977	40.7	537,186	44	16,251	426	15,825	1.2
1929	*38,466*	*29.7*	*992,747*							
1929	38,148	29.3	1,118,414	41.9	468,369	44	7,966	175	7,680	.7
1930	39,653	32.2	1,277,379	32.2	411,070	35	3,123	659	2,464	.2
1931	40,084	28.1	1,126,913	21.3	239,953	22	4,437	85	4,352	.4
1932	41,420	30.1	1,246,548	15.7	195,254	22	5,361	28	5,333	.4
1933	36,701	19.9	731,500	33.4	244,128	36	1,405	154	1,251	.2
1934 [7]	30,395	17.4	528,815	49.1	259,398					

See footnotes 1 to 4 on page 390.

[5] Net imports. Total imports minus total exports (domestic plus foreign).
[6] Less than 0.05 percent.
[7] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised. See introductory text. Italic figures are census returns.

TABLE 61.—*Oats: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	120	130	117	36.8	40.0	40.0	4,322	5,200	4,680	41	51
New Hampshire	7	6	7	39.1	38.0	39.0	285	228	273	56	65
Vermont	60	59	61	31.2	27.0	29.0	1,847	1,593	1,769	50	65
Massachusetts	5	5	5	32.2	30.0	32.0	157	150	160	56	64
Rhode Island	2	2	2	32.6	36.0	32.0	64	72	64	55	64
Connecticut	8	9	10	29.2	25.0	30.0	235	225	300	54	63
New York	858	820	836	31.2	20.5	28.0	26,861	16,810	23,408	45	56
New Jersey	42	44	44	28.0	27.0	33.0	1,233	1,188	1,452	45	53
Pennsylvania	958	925	906	30.4	22.5	27.5	29,069	20,812	24,915	44	53
North Atlantic	2,059	2,000	1,988	31.1	23.1	28.7	64,073	46,278	57,021	44.4	54.6
Ohio	1,851	1,273	1,209	35.6	20.5	21.5	63,826	26,096	25,994	35	48
Indiana	2,001	1,690	1,350	29.5	17.0	13.5	61,328	28,730	18,225	32	45
Illinois	4,236	4,039	3,029	32.6	19.5	11.0	139,955	78,760	33,319	32	46
Michigan	1,424	1,121	1,222	32.2	21.0	23.5	45,707	23,541	28,717	38	51
Wisconsin	2,449	2,457	2,334	35.8	26.0	28.0	84,750	63,882	65,352	34	48
Minnesota	4,337	4,484	3,767	34.0	21.5	19.3	138,859	96,406	72,703	30	48
Iowa	6,151	6,243	4,900	35.8	23.0	12.5	214,018	143,589	61,250	29	47
Missouri	1,647	1,764	1,235	20.4	18.5	11.0	36,652	32,634	13,585	34	48
North Dakota	1,841	1,703	766	22.7	13.0	11.6	38,074	22,139	8,886	25	48
South Dakota	2,311	696	376	26.6	7.5	9.0	59,223	5,220	3,384	30	51
Nebraska	2,422	2,226	1,224	26.5	10.5	7.0	67,015	23,373	8,568	29	49
Kansas	1,325	1,528	1,238	22.4	17.0	13.0	32,929	25,976	16,094	33	48
North Central	31,996	29,224	22,650	31.1	19.5	15.7	982,336	570,346	356,077	31.3	47.8
Delaware	3	3	4	28.6	29.0	33.0	88	87	132	48	55
Maryland	54	50	44	28.4	24.0	30.0	1,563	1,200	1,320	42	54
Virginia	150	168	123	20.0	20.0	19.5	3,189	3,360	2,398	45	54
West Virginia	144	120	108	23.6	19.0	19.0	3,352	2,280	2,052	46	55
North Carolina	173	205	207	17.1	16.5	17.0	3,206	3,382	3,519	56	64
South Carolina	355	370	388	21.9	19.5	17.0	8,117	7,215	6,596	63	71
Georgia	280	295	336	18.7	18.0	19.0	5,778	5,310	6,384	64	70
Florida	9	7	8	14.0	11.5	13.0	126	80	104	66	76
South Atlantic	1,168	1,218	1,218	20.6	18.8	18.5	25,419	22,914	22,505	56.7	65.3
Kentucky	178	122	110	17.6	16.0	15.0	3,187	1,952	1,650	44	50
Tennessee	108	109	89	16.7	16.0	15.0	1,778	1,744	1,335	46	52
Alabama	101	69	110	17.8	16.0	19.0	1,864	1,104	2,090	58	69
Mississippi	33	21	31	20.0	16.0	21.0	716	336	651	56	67
Arkansas	112	103	132	19.4	16.0	15.5	2,288	1,648	2,046	43	62
Louisiana	16	16	20	23.3	16.3	25.0	399	261	500	46	63
Oklahoma	1,119	1,161	1,300	21.0	18.5	15.5	25,684	21,478	20,150	34	45
Texas	1,448	1,189	1,546	25.4	17.5	21.0	37,046	20,808	32,466	36	45
South Central	3,114	2,790	3,338	22.5	17.7	18.2	72,963	49,331	60,888	36.7	47.1
Montana	314	383	306	26.9	17.0	24.0	8,697	6,511	7,344	32	46
Idaho	128	142	132	33.2	32.0	34.0	4,346	4,544	4,488	29	40
Wyoming	134	151	83	25.8	21.0	21.0	3,399	3,171	1,743	33	54
Colorado	182	162	97	27.6	25.5	23.5	5,262	4,131	2,280	29	52
New Mexico	34	38	23	20.4	22.0	15.0	789	836	345	42	61
Arizona	10	13	12	27.1	29.0	24.0	299	377	288	44	53
Utah	46	50	32	35.2	31.0	26.0	1,691	1,550	832	32	50
Nevada	2	3	2	35.5	30.0	23.0	82	90	46	38	54
Washington	150	179	170	46.0	53.0	40.0	7,292	9,487	6,800	35	46
Oregon	245	259	246	30.2	38.0	24.0	8,116	9,842	5,904	34	44
California	88	89	98	25.2	23.5	23.0	2,192	2,092	2,254	38	42
Western	1,334	1,469	1,201	30.4	29.0	26.9	42,165	42,631	32,324	33.2	45.7
United States	39,673	36,701	30,395	30.1	19.9	17.4	1,186,956	731,500	528,815	33.4	49.1

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 62.—*Oats: Production, world and selected countries, 1894–95 to 1934–35*

Crop year	Estimated world, excluding Russia and China	Estimated Europe, excluding Russia	Selected countries							
			United States	Russia[1]	Germany	Canada	France	Poland	England and Wales	Argentina
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1894–95	2,339	1,453	750	683	453	----	294	----	119	----
1895–96	2,544	1,434	925	717	430	----	306	----	105	----
1896–97	2,317	1,378	775	800	411	----	296	----	93	----
1897–98	2,272	1,283	830	664	394	----	253	----	99	1
1898–99	2,502	1,513	842	688	465	----	322	----	102	1
1899–1900	2,646	1,464	937	995	474	----	308	----	99	2
1900–1901	2,656	1,454	945	854	489	----	285	----	99	2
1901–2	2,865	1,415	800	624	486	----	255	----	91	2
1902–3	2,912	1,576	1,077	931	514	----	320	----	115	4
1903–4	2,845	1,649	885	800	542	----	344	----	109	3
1904–5	2,713	1,430	1,012	1,124	478	----	291	----	112	4
1905–6	2,832	1,455	1,104	937	451	----	306	----	99	6
1906–7	2,994	1,683	1,023	714	581	----	295	----	109	12
1907–8	2,852	1,763	801	921	630	----	353	----	121	34
1908–9	2,820	1,626	829	959	530	266	327	----	106	32
1909–10	3,385	1,865	1,014	1,163	629	376	383	----	104	36
1910–11	3,162	1,662	1,106	1,065	544	261	332	----	104	47
1911–12	3,123	1,685	886	876	531	389	349	----	96	69
1912–13	3,709	1,722	1,353	1,089	587	416	355	----	89	76
1913–14	3,524	1,912	1,039	1,251	669	430	357	----	91	43
1914–15	3,213	1,683	1,066	[2] 915	623	333	318	----	93	49
1915–16	3,511	1,403	1,435	[3] 897	412	494	239	----	101	75
1916–17	3,174	1,471	1,139	[4] 845	484	436	277	----	102	32
1917–18	3,094	1,049	1,443	761	[5] 250	428	[5] 220	----	106	69
1918–19	3,137	1,120	1,430	----	302	453	181	----	141	34
1919–20	2,988	1,320	1,107	----	310	419	180	76	110	31
1920–21	3,629	1,478	1,444	486	332	564	291	129	103	51
1921–22	3,074	1,455	1,045	359	345	453	244	92	100	31
1922–23	3,275	1,473	1,148	537	277	522	288	110	88	56
1923–24	3,714	1,722	1,227	575	421	599	337	153	95	76
1924–25	3,574	1,572	1,424	613	390	431	306	106	105	53
1925–26	3,712	1,709	1,410	794	385	427	328	144	97	80
1926–27	3,534	1,843	1,142	1,022	436	407	364	134	104	66
1927–28	3,437	1,748	1,093	903	437	467	343	147	94	52
1928–29	3,829	1,879	1,319	1,135	482	480	340	172	101	65
1929–30	3,647	2,060	1,118	1,084	509	301	373	203	107	68
1930–31	3,594	1,714	1,277	1,145	390	450	286	162	94	61
1931–32	3,324	1,695	1,127	755	427	349	316	159	87	73
1932–33	3,664	1,851	1,247	774	458	416	332	165	88	70
1933–34	3,143	1,938	732	1,062	479	327	391	185	86	57
1934–35 [6]	2,680	1,641	529	----	376	345	286	157	78	78

[1] Includes all Russian territory reporting for the years shown.
[2] Total Russian Empire, exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and the Ukraine, and the Provinces of Batum and Elizabetpol, in Transcaucasia.
[4] Beginning this year, estimates for the present territory of the Union of Soviet Socialist Republics, exclusive of Turkestan, Transcaucasia, and the Far East, which territory in 1924–25 produced 20,248,000 bushels.
[5] Beginning with this year post-war boundaries, and therefore not comparable with earlier years.
[6] Preliminary.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.
Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 63.—*Oats: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1931–32 to 1934–35*

Country	Acreage					Yield per acre					Production				
	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]
NORTHERN HEMISPHERE															
North America:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	14,585	12,871	13,148	13,529	13,731	33.4	27.1	31.6	24.1	25.1	486,570	348,795	416,034	326,695	345,042
United States	42,441	40,084	41,420	36,701	30,395	29.5	28.1	30.1	19.9	17.4	1,251,023	1,126,913	1,246,548	731,500	528,815
Total	57,026	52,955	54,568	50,230	44,126	30.5	27.9	30.5	21.1	19.8	1,737,593	1,475,708	1,662,582	1,058,195	873,857
Europe:															
England and Wales	2,039	1,652	1,580	1,494	1,402	47.5	52.5	55.4	57.4	55.7	96,796	86,751	87,563	85,820	78,120
Scotland	970	835	867	856	820	49.0	52.1	60.2	56.8	55.1	47,563	43,540	52,220	48,580	45,150
Irish Free State	736	623	632	635	580	49.3	58.5	69.5	68.8	59.7	36,310	36,457	43,904	43,693	34,650
Northern Ireland	344	286	286	288	280	54.0	55.3	70.6	63.9	68.6	18,582	15,827	20,201	18,411	19,198
Norway	274	237	235	242	226	41.6	40.1	56.7	51.3	53.8	11,406	9,494	13,328	12,416	12,157
Sweden	1,807	1,588	1,579	1,541	1,696	41.7	42.9	51.8	47.5	48.0	75,374	68,057	81,845	73,201	81,364
Denmark	1,118	937	984	943	943	54.2	68.8	73.9	72.8	71.6	60,542	64,448	72,707	68,653	67,516
Netherlands	380	369	350	337	321	54.9	53.6	54.6	59.4	56.4	20,850	19,784	19,103	20,004	18,119
Belgium	656	729	712	733	735	62.4	66.4	73.6	78.1	64.1	40,954	48,384	52,385	57,216	47,135
Luxemburg	70	75	69	68	68	30.4	36.3	46.1	52.2	47.2	2,130	2,721	3,182	3,548	3,209
France	8,521	8,563	8,370	8,314	8,127	35.3	36.9	39.7	47.0	35.2	300,569	316,286	331,936	390,880	286,237
Spain	1,623	1,986	1,926	1,893	1,877	22.3	21.0	29.7	21.6	27.7	36,175	41,670	57,214	40,971	51,969
Portugal	563	422	458	413	------	11.4	15.0	13.8	8.8	------	6,422	6,331	6,342	3,636	5,340
Italy	1,189	1,146	1,103	1,107	1,063	31.9	34.4	37.7	35.7	32.3	37,896	39,467	41,568	39,562	34,297
Switzerland	51	45	41	40	25	54.7	51.3	59.1	63.6	56.2	2,788	2,308	2,425	2,545	1,404
Germany	8,246	8,310	8,116	7,864	7,772	44.1	51.4	56.5	60.9	48.3	363,278	427,479	458,160	479,011	375,631
Austria	745	777	759	755	743	30.6	29.4	35.4	45.9	46.4	22,817	22,876	26,856	34,640	34,481
Czechoslovakia	2,039	2,031	2,020	1,976	1,936	40.2	41.5	56.7	55.0	42.0	82,029	84,368	114,627	108,654	81,224
Hungary	785	596	578	570	567	28.8	22.4	37.6	43.2	26.8	22,644	13,368	21,756	24,637	15,217
Yugoslavia	923	936	810	936	916	22.4	19.5	22.9	27.3	25.1	20,644	18,242	18,548	25,563	22,972
Greece	206	344	332	341	351	20.3	15.3	20.6	27.1	24.6	4,187	5,274	6,842	9,257	8,634
Bulgaria	362	293	288	327	312	19.6	24.1	24.1	27.4	16.1	7,100	7,060	6,929	8,948	5,032
Rumania	3,133	2,153	1,956	2,050	2,039	20.1	21.4	22.6	27.1	19.9	62,819	46,175	44,276	55,558	40,537
Poland	4,446	5,367	5,487	5,447	5,463	27.2	29.6	30.0	33.9	28.7	120,813	159,108	164,713	184,838	156,717
Lithuania	842	910	922	848	812	27.4	31.1	26.6	26.9	30.9	23,078	28,265	24,552	22,776	25,105
Latvia	740	795	802	758	742	24.6	29.7	27.7	30.1	32.8	18,206	23,611	22,252	22,783	24,305
Estonia	[2] 390	367	356	343	341	[2] 23.3	30.8	25.2	23.4	32.1	9,505	11,296	8,966	8,014	10,934
Finland	1,058	1,119	1,124	1,130	1,132	32.6	41.2	41.0	38.7	46.9	34,529	46,135	46,122	43,783	53,090

U.S.S.R., European and Asiatic	25,776	43,184	38,111	41,223	.....	22.3	17.5	20.3	25.8	.....	575,634	755,076	774,366	1,061,715	.....
Total Europe reporting area and production, all years	43,693	43,069	42,284	41,836	41,289	36.0	39.2	43.6	46.2	39.6	1,579,584	1,688,451	1,844,180	1,933,962	1,634,404
Estimated European total, excluding U.S.S.R.	44,300	43,500	42,800	42,200	41,700	.....	.....	.....	.....	.....	1,586,000	1,695,000	1,851,000	1,938,000	1,641,000
Africa:															
Morocco	35	60	56	79	86	18.4	27.6	22.6	23.8	30.0	645	1,654	1,267	1,883	2,584
Algeria	605	557	488	451	468	21.0	14.7	17.8	21.5	27.1	12,713	8,212	8,707	9,703	12,697
Tunis	126	72	54	51	49	19.4	31.6	35.7	13.5	22.5	2,439	2,273	1,929	689	1,102
Total	766	689	598	581	603	20.6	17.6	19.9	21.1	27.2	15,797	12,139	11,903	12,275	16,383
Asia:															
Turkey	[3] 216	405	294	434	419	[4] 47.5	20.0	29.5	33.1	23.8	[4] 11,391	8,113	8,681	14,353	9,954
Syria and Lebanon	[2] 26	27	32	28	33	[2] 16.7	26.3	29.1	32.1	31.3	[2] 435	711	931	899	1,033
Japan	278	292	314	314	.....	39.0	37.9	24.4	35.2	.....	10,847	11,081	7,653	11,062	.....
Chosen	276	305	289	292	.....	16.5	16.8	16.8	9.0	.....	4,545	5,137	4,859	2,633	.....
Total Northern Hemisphere reporting area and production, all years	101,727	97,145	97,776	93,109	86,470	32.8	32.8	36.1	32.4	29.3	3,344,800	3,185,122	3,528,277	3,019,684	2,535,631
Estimated Northern Hemisphere total, excluding U.S.S.R. and China	102,900	98,300	98,900	94,200	87,600	.....	.....	.....	.....	.....	3,368,000	3,210,000	3,550,000	3,040,000	2,559,000
SOUTHERN HEMISPHERE															
Chile	106	163	168	264	207	37.3	30.2	42.1	29.9	.....	3,954	4,923	7,068	7,881	.....
Uruguay	120	148	146	213	229	18.0	21.0	5.3	15.1	.....	2,166	3,111	769	3,218	.....
Argentina	1,824	2,041	2,208	1,651	2,397	32.5	35.8	31.5	34.8	32.5	59,286	72,980	69,583	57,388	77,850
Union of South Africa	645	578	.....	.....	542	10.3	.....	.....	.....	.....	6,624	.....	.....	.....	.....
Australia	1,000	1,085	1,027	.....	.....	19.0	17.5	19.7	.....	.....	19,010	18,993	20,200	.....	.....
New Zealand	125	69	116	78	.....	48.0	49.8	53.9	50.7	.....	5,996	3,435	6,255	3,952	.....
Total Northern and Southern Hemisphere countries reporting area and production, all years	103,551	99,186	99,984	94,760	88,867	32.8	32.8	36.0	32.5	29.4	3,404,086	3,258,102	3,597,860	3,077,072	2,613,481
Estimated world total, excluding U.S.S.R. and China	106,800	102,400	103,300	98,200	92,200	.....	.....	.....	.....	.....	3,470,000	3,324,000	3,664,000	3,143,000	2,680,000

[1] Preliminary.
[2] 4-year average.
[3] 2-year average.
[4] 1 year only.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture. "U.S.S.R." means Union of Soviet Socialist Republics.
Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 64.—*Oats: Stocks on farms, quarterly, United States, 1925–26 to 1934–35*

Season	Stocks on farms				Season	Stocks on farms			
	Oct. 1	Jan. 1	Apr. 1	July 1[1]		Oct. 1	Jan. 1	Apr. 1	July 1[1]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*		*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1925–26	-------	-------	519, 971	229, 145	1930–31	981, 352	746, 977	429, 885	168, 554
1926–27	886, 480	680, 422	398, 348	150, 728	1931–32	886, 863	655, 804	365, 794	142, 683
1927–28	830, 864	628, 045	332, 957	111, 841	1932–33	973, 979	763, 195	467, 976	204, 372
1928–29	1, 021, 209	766, 567	447, 773	177, 681	1933–34	608, 005	456, 283	275, 425	107, 577
1929–30	854, 576	644, 029	368, 853	144, 116	1934–35	446, 287	346, 258	208, 185	-------

[1] Includes old crop only.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 65.—*Oats: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1924–25 to 1933–34*

Season	Percentage of receipts during—													
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
1924–25	0. 2	6. 8	18. 3	18. 3	12. 6	7. 7	8. 3	7. 7	4. 8	3. 3	2. 7	4. 9	4. 4	100. 0
1925–26	. 2	9. 6	20. 0	13. 5	10. 9	7. 4	7. 0	6. 0	6. 2	5. 3	4. 3	4. 6	5. 0	100. 0
1926–27	1. 3	11. 4	20. 4	12. 4	9. 1	6. 5	6. 7	6. 6	6. 2	5. 9	4. 4	5. 0	4. 1	100. 0
1927–28	1. 4	8. 4	21. 7	14. 5	10. 3	6. 6	6. 6	6. 3	6. 5	6. 0	3. 9	4. 4	3. 4	100. 0
1928–29	1. 1	6. 8	23. 7	13. 5	10. 2	6. 5	7. 5	5. 4	6. 6	5. 0	4. 8	4. 1	4. 8	100. 0
1929–30	1. 0	11. 3	30. 2	12. 8	8. 7	5. 4	5. 1	4. 2	4. 4	4. 4	4. 8	4. 3	3. 4	100. 0
1930–31	1. 4	12. 6	27. 5	13. 2	8. 7	4. 4	5. 0	4. 4	5. 5	4. 5	5. 0	3. 8	4. 0	100. 0
1931–32	3. 3	15. 2	21. 5	11. 3	7. 5	5. 6	5. 6	5. 6	5. 5	5. 2	5. 3	4. 9	3. 5	100. 0
1932–33	13. 4	22. 4	11. 5	7. 4	5. 1	5. 1	4. 2	4. 2	3. 9	5. 8	7. 5	9. 4	. 1	100. 0
1933–34	2. 9	22. 4	21. 0	14. 0	6. 9	5. 4	4. 6	3. 9	3. 8	4. 1	3. 5	4. 0	3. 5	100. 0

Bureau of Agricultural Economics.

TABLE 66.—*Oats: Receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1924–25 to 1933–34*

Year beginning August	Grade					Total
	No. 1	No. 2	No. 3	No. 4	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1924–25	1, 489	33, 631	110, 377	24, 580	14, 853	184, 930
1925–26	2. 197	53, 587	75, 634	17, 989	6, 260	155, 667
1926–27	1, 465	19, 692	49, 581	28, 548	17, 695	116, 981
1927–28	2, 838	29, 106	64, 444	19, 397	5, 728	121, 513
1928–29	4, 408	14, 144	77, 823	20, 684	9, 305	126, 364
1929–30	4, 106	26, 053	71, 757	11, 822	3, 097	116, 835
1930–31	10, 344	36, 939	35, 186	8, 137	983	91, 589
1931–32	1, 394	21, 966	40, 303	4, 059	926	68, 648
1932–33	1, 370	24, 110	49, 901	7, 936	1, 213	84, 530
1933–34	2, 926	15, 547	27, 050	6, 638	1, 703	53, 864

Bureau of Agricultural Economics.

TABLE 67.—*Oats: Commercial stocks, 1926–27 to 1934–35*

DOMESTIC OATS IN UNITED STATES[1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27							47,123	47,421	45,105	38,481	30,513	21,032
1927–28	17,686	11,886	23,224	26,513	25,682	24,784	23,815	21,949	21,127	16,803	11,667	7,171
1928–29	3,338	2,445	15,992	17,561	16,900	15,399	17,314	16,219	16,801	14,003	11,493	10,591
1929–30	8,592	8,668	24,318	28,597	32,762	30,064	29,019	26,097	22,937	19,484	16,519	13,247
1930–31	11,028	9,102	25,844	32,928	33,265	30,504	30,896	26,770	23,029	18,213	13,930	9,681
1931–32	7,525	8,021	15,013	17,372	18,180	18,161	16,810	17,096	17,938	15,796	13,621	11,839
1932–33	10,657	12,627	27,273	28,895	29,084	27,484	26,443	26,406	25,831	24,195	21,878	23,959
1933–34	28,430	35,589	46,193	50,846	49,860	48,755	47,229	45,177	42,399	38,190	33,013	26,237
1934–35	23,369	22,732	26,344	26,271	24,245	23,570						

UNITED STATES OATS IN CANADA[2]

1926–27							352	247	218	164	635	1,432
1927–28	1,759	1,253	1,238	1,435	1,110	825	670	563	438	216	57	239
1928–29	60	4	978	2,326	1,031	547	644	494	424	309	716	529
1929–30	346	334	2,177	4,293	4,435	4,410	3,630	3,236	2,852	2,407	1,934	1,580
1930–31	936	1,106	2,679	2,478	2,425	2,103	1,475	1,110	834	626	821	936
1931–32	484	207	110	199	230	467	165	11	2	0	73	226
1932–33	126	144	1,317	1,530	1,407	1,151	1,094	680	392	158	316	656
1933–34	677	661	918	969	845	1,133	871	488	238	81	46	290
1934–35	288	241	169	139	153	126						

CANADIAN OATS IN CANADA[3]

1926–27							14,868	14,846	15,026	13,835	10,732	7,734
1927–28	5,843	4,438	2,685	2,505	4,923	8,634	10,656	11,879	13,027	12,918	12,070	9,270
1928–29	8,247	5,381	3,114	3,847	9,636	15,145	20,665	21,085	22,709	24,079	19,753	17,892
1929–30	16,045	15,893	14,859	16,449	19,777	20,998	21,233	20,109	18,489	16,065	12,553	10,340
1930–31	8,753	6,689	5,974	9,594	11,178	13,839	15,052	14,200	13,799	14,877	11,873	10,601
1931–32	9,074	8,874	8,806	9,527	10,823	13,577	15,582	14,624	14,277	14,800	11,054	6,005
1932–33	5,659	6,272	5,664	7,031	8,314	9,115	9,262	9,389	9,767	11,864	11,023	9,692
1933–34	10,252	12,204	13,501	15,893	19,328	20,192	20,144	18,753	18,222	16,747	12,676	10,682
1934–35	10,263	10,463	9,374	11,987	15,775	15,786						

CANADIAN OATS IN UNITED STATES[4]

1926–27							228	228	171	66	117	208
1927–28	19	24	26	0	139	296	609	346	247	117	21	199
1928–29	122	12	123	141	211	711	900	704	801	516	722	577
1929–30	377	341	341	283	429	670	699	634	615	488	330	264
1930–31	91	146	21	49	27	7	255	167	3	10	78	238
1931–32	55	13	41	41	41	32	32	2	2	1	1	40
1932–33	0	0	0	0	0	0	0	0	0	0	0	0
1933–34	0	0	0	0	0	0	0	0	0	0	0	0
1934–35	0	0	0	0	266	23						

[1] Includes domestic oats in store in public and private elevators in 41 markets and oats afloat in vessels or barges in harbors of lake and seaboard ports. Does not include oats in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of oats intended for local use.

[2] Includes United States oats in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include oats in transit to Canadian ports.

[3] Includes practically all Canadian oats held within Canadian boundaries, exclusive of farm and certain mill stocks.

[4] Includes Canadian oats in store and afloat at 10 United States lake and seaboard ports but not Canadian oats in transit on lakes or canals.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data for domestic and Canadian oats in United States are for stocks on the Saturday nearest the 1st day of the month; for Canadian and United States oats in Canada data are for stocks on the Friday nearest the 1st day of the month.

TABLE 68.—*Oats: Supply and distribution in continental United States, 1926–27 to 1934–35*

Year beginning July	Supply						Distribution		
	Production	Stocks on farms, July 1	Farm supply, July 1	Commercial stocks, July 1 [1]	Total stocks, July 1	Total supply, July 1	Net exports [2]	Disappearance	Stocks, end of year
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	1,141,941	229,145	1,371,086	38,768	267,913	1,409,854	14,988	1,226,452	168,414
1927–28	1,093,097	150,728	1,243,825	17,686	168,414	1,261,511	9,611	1,136,721	115,179
1928–29	1,318,977	111,841	1,430,818	3,338	115,179	1,434,156	15,825	1,232,058	186,273
1929–30	1,118,414	177,681	1,296,095	8,592	186,273	1,304,687	7,680	1,141,863	155,144
1930–31	1,277,379	144,116	1,421,495	11,028	155,144	1,432,523	2,464	1,253,980	176,079
1931–32	1,126,913	168,554	1,295,467	7,525	176,079	1,302,992	4,352	1,145,300	153,340
1932–33	1,246,548	142,683	1,389,231	10,657	153,340	1,399,888	5,333	1,161,753	232,802
1933–34	731,500	204,372	935,872	28,430	232,802	964,302	1,251	832,105	130,946
1934–35	528,815	107,577	636,392	23,369	130,946	659,761			

[1] For July 1926, Bradstreet's visible supply.
[2] Includes oatmeal.

Bureau of Agricultural Economics.

TABLE 69.—*Oats: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	45.3	40.7	38.1	37.2	37.6	39.1	40.0	39.2	38.8	39.4	39.5	38.9	38.8
1926–27	37.7	37.9	35.6	39.0	39.8	41.1	42.6	43.4	43.4	43.2	45.4	48.0	40.1
1927–28	46.3	44.4	43.9	44.6	45.1	48.1	49.3	51.3	54.5	56.9	62.0	61.4	47.1
1928–29	56.2	38.4	36.7	39.0	39.8	42.5	43.7	47.0	46.6	45.8	44.6	42.5	40.7
1929–30	42.9	42.7	44.1	44.8	43.1	43.6	43.1	43.0	41.4	42.4	40.9	39.3	41.9
1930–31	33.1	35.7	36.1	34.7	31.5	32.3	31.1	30.7	30.1	30.2	28.6	26.1	32.2
1931–32	23.3	19.8	20.0	20.1	23.2	23.0	22.7	22.8	22.8	22.8	21.8	19.8	21.3
1932–33	17.5	14.8	14.4	13.1	13.1	13.0	13.4	13.3	13.7	17.0	21.7	23.1	15.7
1933–34	39.1	32.2	32.3	27.9	31.4	31.4	32.5	34.1	33.9	32.6	32.7	38.9	33.4
1934–35	40.6	45.8	50.3	50.5	51.1	53.9							[1] 49.1

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 77. Only monthly prices are comparable.

TABLE 70.—*Oats, No. 3, white: Weighted average price per bushel of reported cash sales, Chicago, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	41	39	39	40	42	42	41	40	42	41	40	42	41
1926–27	38	38	44	42	46	46	43	44	45	50	49	45	43
1927–28	47	47	48	49	54	55	56	59	63	67	68	56	55
1928–29	38	41	42	44	56	50	50	48	48	45	45	47	44
1929–30	43	48	47	45	45	45	44	43	43	41	38	35	44
1930–31	39	38	36	33	34	32	32	31	30	28	27	23	35
1931–32	21	22	23	26	25	25	24	22	23	23	21	18	22
1932–33	17	17	15	15	15	15	15	17	22	25	30	39	22
1933–34	36	35	32	34	35	37	36	33	32	35	43	45	36
1934–35	49	55	52	54	56								

Bureau of Agricultural Economics; computed by weighting selling price by number of car lots sold as reported in Chicago Daily Trade Bulletin.
Data for 1899–1923 available in 1924 Yearbook, table 94; for 1924 in 1934 Yearbook, table 69.

TABLE 71.—*Oats, including oatmeal, in terms of grain: International trade, average 1925–26 to 1929–30, annual 1930–31 to 1933–34*

Country	Year beginning July									
	Average 1925–26 to 1929–30		1930–31		1931–32		1932–33		1933–34 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Argentina	29,280	[2] 91	45,036	123	52,195	73	33,892	75	20,970	-------
Germany	20,070	15,581	1,752	2,751	30	1,115	635	1,275	6,127	360
United States	17,754	207	3,123	638	4,437	65	5,361	15	1,406	[3] 143
Canada	16,656	2,899	10,336	714	18,467	1,817	14,158	2,144	8,336	21
Chile	3,861	-------	6,512	-------	1,055	-------	682	-------	4,031	-------
Czechoslovakia	3,676	1,260	2,408	69	2,435	564	9,455	2	2,675	2
Irish Free State	3,305	1,559	847	2,421	230	2,410	145	794	88	-------
Rumania	3,302	2	6,335	0	824	0	[4] 2,067	[4] 0	[4] 1,619	[4] 0
Poland	2,713	1,499	858	55	183	39	863	30	947	0
Union of Soviet Socialist Republics	2,517	0	33,773	0	14,619	0	1,670	0	8,674	0
Hungary	2,134	2	73	363	17	85	1,252	0	2,579	0
Algeria	1,764	588	4,819	422	923	1,253	409	200	177	874
Tunis	1,556	81	1,901	24	655	0	483	1	146	66
Yugoslavia [5]	495	[2] 48	6	380	4	43	2	2	104	0
Total	109,083	23,817	117,779	7,960	96,074	7,464	71,074	4,538	57,879	1,466
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	1,170	30,339	1,237	35,576	666	33,309	348	23,730	56	21,131
Switzerland	5	10,936	13	14,263	15	15,645	10	15,642	10	14,827
Belgium	46	8,210	49	10,794	104	5,601	55	3,306	4	1,364
Netherlands	412	7,851	1,173	10,659	160	8,184	82	8,251	59	3,738
Italy	9	7,016	1	12,001	1	11,506	0	9,551	1	7,781
France	648	6,598	73	6,509	24	9,050	15	4,979	556	843
Austria	8	6,092	13	6,589	2	4,984	4	2,131	3	1,288
Denmark	217	3,255	65	4,550	237	2,166	232	1,243	133	1,636
Sweden	902	2,956	452	3,779	770	3,946	372	1,972	79	2,886
Finland	25	1,891	24	963	62	674	8	401	27	1,783
Cuba	0	1,157	0	570	0	405	0	-------	0	-------
Latvia [6]	110	1,127	16	183	0	24	35	0	-------	-------
Norway	8	714	13	59	5	857	4	41	-------	8
Estonia	0	693	0	534	0	24	0	0	0	0
Australia	155	276	267	25	360	19	392	16	-------	-------
Union of South Africa	148	160	84	104	84	96	42	71	55	90
Japan [6]	0	96	0	9	0	8	0	3	0	-------
Total	3,863	89,367	3,480	107,167	2,490	96,498	1,599	71,337	983	57,375

[1] Preliminary.
[2] 3-year average.
[3] Imports for consumption.
[4] Monthly Crop Report and Agricultural Statistics, International Institute of Agriculture.
[5] Calendar year.
[6] Year beginning Aug. 1, International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 72.—*Barley: Acreage, production, value, and foreign trade, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning August [2]	Foreign trade, including barley, flour, and malt, year beginning July [3]			
							Domestic exports	Imports	Net exports [4]	
									Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1919	*6,473*	*18.9*	*122,025*							
1919	6,579	19.9	131,086	124.4	163,045	145	34,691	335	34,356	26.2
1920	7,439	23.0	171,042	84.4	144,276	78	27,255	20	27,234	15.9
1921	7,074	18.8	132,702	47.8	63,471	61	27,546	8	27,538	20.8
1922	6,601	23.2	152,908	49.9	76,314	65	21,909	38	21,871	14.3
1923	7,151	22.2	158,994	54.6	86,868	72	13,913	55	13,858	8.7
1924	*6,767*	*23.5*	*159,139*							
1924	7,038	23.8	167,314	74.2	124,086	90	28,543	48	28,495	17.0
1925	8,186	23.5	192,779	61.4	118,355	72	30,448	53	30,395	15.8
1926	7,917	20.8	164,467	57.9	95,288	77	19,655	49	19,605	12.0
1927	9,465	25.4	240,057	68.9	165,421	91	39,274	45	39,230	16.3
1928	12,735	25.9	329,625	56.8	187,133	60	60,295	45	60,249	18.3
1929	*12,891*	*20.4*	*263,590*							
1929	13,523	20.7	280,242	53.9	150,946	62	24,054	41	24,013	8.6
1930	12,666	24.0	303,752	40.4	122,620	54	11,443	1,413	10,030	3.3
1931	11,424	17.4	198,543	32.5	64,563	40	5,469	1,509	3,960	2.0
1932	13,346	22.6	302,042	22.0	66,394	38	9,399	1,406	7,993	2.6
1933	10,009	15.6	155,825	43.3	67,531	72	6,112	4,560	1,552	1.0
1934 [5]	7,144	16.6	118,929	71.0	84,439					

[1] Beginning with 1919 prices are weighted average prices for crop-marketing season.

[2] From Bureau of Labor Statistics, wholesale price bulletins—monthly quotations, August 1919–September 1927. Fair to Good malting. Beginning October 1927, grade reported as feeding, but as quality remained unchanged, no change was made in comparative prices.

[3] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34; and official records of the Bureau of Foreign and Domestic Commerce. Malt converted to terms of barley on the basis that 1.1 bushels of malt is the product of 1 bushel of barley. Barley flour converted on the basis that 1 barrel of flour is the product of 9 bushels of barley. Exports of flour not reported prior to 1919. Barley—imports for consumption, 1919–34. Malt—imports for consumption, 1919–34. Flour—imports for consumption, 1919–34.

[4] Total exports (domestic exports plus reexports) minus total imports.

[5] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text. Italic figures are census returns.

TABLE 73.—*Barley: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	3	5	4	29.6	31.0	30.0	87	155	120	64	73
Vermont	5	4	4	26.5	24.0	27.0	132	96	108	65	74
New York	187	165	162	27.0	20.0	24.5	4,975	3,300	3,969	57	71
New Jersey	1	1	1	28.8	28.0	27.0	31	28	27	58	61
Pennsylvania	38	81	68	23.7	25.0	25.5	951	2,025	1,734	58	66
North Atlantic	234	256	239	26.8	21.9	24.9	6,176	5,604	5,958	57.7	69.6
Ohio	152	44	19	26.0	15.0	17.5	3,963	660	332	46	57
Indiana	47	28	21	21.4	10.0	13.0	1,026	280	273	50	66
Illinois	405	319	93	29.8	15.0	9.5	11,627	4,785	884	50	79
Michigan	239	250	188	25.0	13.0	18.0	6,130	3,250	3,384	52	75
Wisconsin	696	805	741	30.4	22.0	26.0	21,288	17,710	19,266	56	96
Minnesota	1,929	1,850	1,536	25.4	15.5	15.7	48,121	28,675	24,115	47	84
Iowa	602	586	457	29.0	16.0	12.5	17,933	9,376	5,712	44	76
Missouri	12	15	22	19.4	17.0	10.0	237	255	220	57	84
North Dakota	2,303	1,758	791	18.1	10.0	9.0	39,577	17,580	7,119	35	65
South Dakota	1,761	493	237	19.0	7.0	7.5	32,485	3,451	1,778	39	70
Nebraska	574	799	360	21.6	10.5	7.5	13,439	8,390	2,700	29	58
Kansas	548	408	265	15.4	8.0	7.5	9,628	3,264	1,988	39	70
North Central	9,269	7,355	4,730	22.1	13.3	14.3	205,453	97,676	67,771	44.4	82.2
Maryland	11	23	22	28.9	26.0	28.5	322	598	627	52	59
Virginia	14	35	36	26.3	24.5	24.5	380	858	882	60	65
West Virginia	--------	4	4	--------	23.0	20.0	--------	92	80	56	67
North Carolina	18	17	16	[2] 18.5	16.0	17.0	336	272	272	79	80
South Atlantic	43	79	78	24.8	23.0	23.9	1,049	1,820	1,861	60.1	65.3
Kentucky	6	12	10	23.4	23.0	21.0	160	276	210	58	66
Tennessee	14	21	19	18.2	18.0	17.0	256	378	323	67	79
Oklahoma	76	80	110	15.2	9.0	11.5	1,205	720	1,265	47	63
Texas	194	172	189	18.3	10.0	13.0	3,472	1,720	2,457	45	59
South Central	291	285	328	17.3	10.9	13.0	5,093	3,094	4,255	49.3	62.1
Montana	208	176	123	22.6	13.5	18.0	4,585	2,376	2,214	38	60
Idaho	136	143	134	30.8	29.0	32.0	4,319	4,147	4,288	35	52
Wyoming	108	89	43	22.2	18.0	18.0	2,305	1,602	774	39	70
Colorado	513	430	189	18.6	16.0	16.0	9,966	6,880	3,024	31	70
New Mexico	9	13	10	17.4	18.0	12.0	168	234	120	46	73
Arizona	9	20	22	30.5	35.0	29.0	296	700	638	49	53
Utah	36	37	31	35.3	31.0	27.0	1,401	1,147	837	40	63
Nevada	6	5	5	37.2	30.0	28.0	237	150	140	48	59
Washington	55	74	59	31.4	35.0	30.0	1,813	2,590	1,770	40	55
Oregon	75	113	98	27.6	29.5	26.5	2,262	3,334	2,597	41	62
California	969	934	1,055	26.4	26.2	21.5	25,320	24,471	22,682	40	48
Western	2,126	2,034	1,769	25.1	23.4	22.1	52,673	47,631	39,084	38.4	53.0
United States	11,963	10,009	7,144	22.7	15.6	16.6	270,444	155,825	118,929	43.3	71.0

[1] Preliminary.
[2] 8-year average.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 74.—*Barley: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1931–32 to 1934–35*

Country	Acreage					Yield per acre					Production				
	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35[1]
NORTHERN HEMISPHERE	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
North America:															
Canada	3,022	3,768	3,758	3,658	3,612	25.4	17.9	21.5	17.3	17.6	76,899	67,383	80,773	63,359	63,742
United States	7,210	11,424	13,346	10,009	7,144	22.3	17.4	22.6	15.6	16.6	160,939	198,543	302,042	155,825	118,929
Mexico	647	370	394	382	-------	6.0	8.5	7.7	8.3	-------	3,909	3,158	3,051	3,156	-------
Estimated North American total	10,900	15,600	17,500	14,000	11,100	-------	-------	-------	-------	-------	242,000	269,000	386,000	222,000	186,000
Europe:															
England and Wales	1,352	1,029	961	751	861	34.2	35.0	37.3	39.2	39.4	46,274	36,066	35,798	29,456	33,927
Scotland	158	88	69	60	96	38.6	39.2	44.6	44.3	43.8	6,092	3,453	3,080	2,660	4,200
Irish Free State	156	116	103	117	143	38.3	42.4	48.3	47.7	45.7	5,981	4,921	4,974	5,582	6,533
Norway	137	138	137	142	147	32.0	30.5	39.7	32.4	37.3	4,383	4,207	5,433	4,597	5,488
Sweden	409	311	293	279	261	31.6	32.9	37.2	35.6	36.2	12,921	10,238	10,904	9,922	9,461
Denmark	695	889	854	865	840	46.4	49.5	54.3	50.9	51.9	32,246	43,972	46,348	44,023	43,633
Netherlands	63	71	49	44	79	52.4	46.1	51.0	52.5	55.8	3,302	3,274	2,498	2,311	4,409
Belgium	84	83	94	92	97	49.1	48.4	50.0	50.1	49.8	4,127	4,018	4,701	4,613	4,833
France	1,713	1,865	1,779	1,736	1,911	25.6	25.6	28.1	30.3	27.3	43,892	47,730	50,015	52,592	52,213
Spain	4,343	4,644	4,837	4,633	4,502	21.2	19.5	27.4	21.6	28.7	92,268	90,724	132,565	100,005	129,161
Portugal	182	170	192	210	-------	11.3	11.9	10.9	6.8	-------	2,053	2,025	2,094	1,438	2,346
Italy	567	538	520	511	492	18.1	20.6	21.9	20.4	19.0	10,283	11,061	11,367	10,400	9,347
Germany	3,198	4,001	3,875	3,918	4,030	31.3	34.6	38.1	40.7	36.5	100,182	138,622	147,647	159,287	147,152
Austria	331	416	423	423	416	22.2	23.9	29.8	36.1	32.9	7,341	9,948	12,589	15,290	13,691
Czechoslovakia	1,670	1,775	1,759	1,639	1,632	30.0	27.8	39.3	37.8	29.1	50,119	49,356	69,119	62,029	47,508
Hungary	1,096	1,165	1,160	1,197	1,213	20.3	18.8	28.5	32.3	16.9	22,198	21,867	33,029	38,647	20,530
Yugoslavia	902	1,065	1,006	1,078	1,038	15.6	16.9	17.9	19.7	18.1	14,027	17,999	17,982	21,267	18,744
Greece	383	554	536	553	589	14.8	12.9	16.6	19.1	20.2	5,676	7,146	8,882	10,539	11,891
Bulgaria	539	605	570	602	569	17.2	26.2	23.8	26.8	15.0	9,266	15,860	13,572	16,147	8,522
Rumania	4,315	4,742	4,415	4,485	4,332	12.8	13.7	15.3	19.3	9.4	55,295	64,962	67,385	86,543	40,624
Poland	2,547	3,144	2,982	2,882	2,945	19.6	21.6	21.6	22.9	20.1	49,850	67,779	64,339	65,949	59,050
Lithuania	451	486	497	512	503	20.5	22.8	22.1	19.1	21.9	9,234	11,085	10,975	9,769	11,000
Latvia	414	453	457	456	445	16.9	19.4	19.4	19.6	22.5	6,979	8,808	8,849	8,955	10,002
Estonia	303	279	266	256	257	18.0	21.2	17.3	14.6	20.5	5,464	5,917	4,607	3,731	5,273
Finland	273	292	308	320	325	21.2	26.0	26.7	25.5	30.9	5,782	7,605	8,218	8,175	10,036
Union of Soviet Socialist Republics	14,793	16,936	16,912	17,932	-------	14.2	14.0	13.7	20.1	-------	210,447	237,913	231,024	360,470	-------
Total Europe reporting area and production, all years	26,099	28,749	27,950	27,551	27,723	23.1	23.9	27.7	28.0	25.5	603,182	686,618	774,876	772,489	707,228

Estimated European total excluding Union of Soviet Socialist Republics	26,300	29,000	28,200	27,800	28,000						606,000	690,000	779,000	775,000	711,000
Africa:															
Morocco	2,862	3,221	3,298	3,752	3,793	14.1	18.3	14.3	13.4	17.0	40,304	59,030	47,146	50,408	64,303
Algeria	3,017	3,178	3,339	3,450	3,093	10.2	8.5	9.3	10.4	12.3	30,779	27,068	30,901	35,991	38,121
Tunis	1,033	1,223	1,507	927	988	6.6	6.8	10.4	7.9	7.0	6,843	8,268	15,616	7,349	6,890
Egypt	381	306	366	292	284	30.0	31.7	33.0	31.6	31.8	11,427	9,693	12,066	9,236	9,032
Estimated African total	8,100	8,500	9,300	9,000	8,700						101,000	111,000	115,000	111,000	125,000
Asia:															
Turkey	[2] 2,146	3,769	3,401	3,312	3,294	[3] 29.5	20.2	14.2	22.2	26.2	[3] 57,482	76,184	48,226	73,432	86,311
India	7,501	7,635	7,384	7,405		17.8	14.6	15.1	14.8		133,793	111,627	111,440	109,713	
Syria and Lebanon	[4] 796	845	776	763	604	[4] 9.5	16.9	11.7	17.1	18.5	7,300	14,314	9,115	13,062	11,148
Japan	2,630	2,097	2,107	1,924	1,862	31.4	36.5	36.9	34.8	38.4	82,490	76,518	77,741	66,982	71,507
Chosen	2,131	2,410	2,445	2,484	2,179	17.2	17.4	17.9	17.9	21.6	36,607	41,861	43,862	44,409	47,163
Estimated Asiatic total	17,200	19,500	18,800	18,800	18,400						347,000	356,000	318,000	336,000	357,000
Total Northern Hemisphere countries reporting area and production, all years	51,327	60,990	62,293	58,122	54,576	21.7	20.7	23.2	22.2	22.4	1,114,252	1,265,480	1,442,364	1,292,542	1,224,374
Estimated Northern Hemisphere total excluding Union of Soviet Socialist Republics and China	62,500	72,600	73,800	69,600	66,200						1,296,000	1,426,000	1,598,000	1,444,000	1,379,000
SOUTHERN HEMISPHERE															
Chile	162	106	155	235	151	33.0	29.2	40.0	28.6		5,347	3,097	6,203	6,723	
Argentina	504	1,011	1,283	1,379	1,705	19.7	19.6	25.1	26.1	25.1	9,924	19,771	32,150	36,008	42,714
Union of South Africa	97	76			83	12.3					1,189				
Australia	307	342	443			19.7	19.2	20.6			6,048	6,553	9,135		
Estimated Southern Hemisphere total	1,500	2,000	2,600	2,700	2,900						31,000	39,000	57,000	60,000	65,000
Total Northern and Southern Hemisphere countries reporting area and production, all years	51,831	62,001	63,576	59,501	56,281	21.7	20.7	23.2	22.3	22.5	1,124,176	1,285,251	1,474,514	1,328,550	1,267,088
Estimated world total excluding Union of Soviet Socialist Republics and China	64,000	74,600	76,400	72,300	69,100						1,327,000	1,465,000	1,655,000	1,504,000	1,444,000

[1] Preliminary. [2] 2-year average. [3] 1 year only. [4] 4-year average.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 75.—*Barley: Production, world and selected countries, 1894–95 to 1934–35*

Crop year	Estimated world, excluding Russia	Estimated Europe, excluding Russia	Selected countries							
			United States	Russia [1]	Germany	Japan	Canada	India	Spain	Rumania
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1894–95	1,034	547	74	197	133	81	-------	-------	57	17
1895–96	1,001	529	104	226	131	80	-------	-------	47	22
1896–97	974	530	97	254	127	71	-------	-------	36	32
1897–98	909	483	103	239	120	73	-------	-------	46	21
1898–99	1,040	566	98	307	132	83	-------	-------	73	30
1899–1900	1,021	536	118	227	140	77	-------	-------	54	5
1900–1	1,035	525	97	237	141	82	-------	-------	57	15
1901–2	1,090	573	124	240	156	83	-------	-------	80	24
1902–3	1,127	595	146	338	145	74	-------	-------	81	25
1903–4	1,108	596	149	357	156	60	-------	-------	64	30
1904–5	1,074	515	166	346	138	81	-------	-------	54	12
1905–6	1,071	535	172	347	137	77	-------	-------	46	26
1906–7	1,215	613	179	331	146	84	-------	-------	90	34
1907–8	1,145	572	151	377	164	90	-------	-------	54	20
1908–9	1,121	539	171	402	143	87	47	-------	70	13
1909–10	1,326	624	173	502	164	87	55	-------	79	20
1910–11	1,213	563	142	488	136	82	29	-------	76	29
1911–12	1,314	609	145	437	148	86	44	-------	87	26
1912–13	1,322	592	197	496	163	91	49	-------	60	21
1913–14	1,379	635	159	600	172	101	48	-------	69	27
1914–15	1,198	547	178	[2] 433	144	86	36	125	72	26
1915–16	1,222	477	207	[3] 429	114	95	54	143	84	29
1916–17	1,178	507	159	[4] 305	128	89	43	148	87	30
1917–18	1,140	427	182	325	[5] 86	89	55	156	78	-------
1918–19	1,246	424	225	-------	94	[6] 89	77	156	90	[5] 5
1919–20	1,104	483	131	-------	77	95	56	130	82	32
1920–21	1,233	554	171	216	82	92	63	150	90	68
1921–22	1,220	557	133	118	89	88	60	117	89	44
1922–23	1,277	588	153	197	74	87	72	146	78	94
1923–24	1,377	649	159	262	108	71	77	145	112	61
1924–25	1,297	566	167	201	110	75	89	137	84	31
1925–26	1,465	672	193	275	119	91	87	123	99	47
1926–27	1,435	674	164	252	113	88	100	121	96	77
1927–28	1,457	659	240	206	126	82	97	119	92	58
1928–29	1,670	743	330	260	154	81	136	98	82	69
1929–30	1,740	828	280	331	146	80	102	118	97	126
1930–31	1,676	759	304	311	131	72	135	107	104	109
1931–32	1,465	690	199	238	139	77	67	112	91	65
1932–33	1,655	779	302	231	148	78	81	111	133	67
1933–34	1,504	775	156	360	159	67	63	110	100	87
1934–35 [7]	1,444	711	119	-------	147	72	64	-------	129	41

[1] Includes all Russian territory reporting for the years shown.
[2] Total Russian Empire exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and the Ukraine, and 2 provinces of Transcaucasia.
[4] Beginning this year, estimates within present boundaries of the Union of Soviet Socialist Republics excluding Turkestan, Transcaucasia, and the Far East, which regions in 1924–25 produced 20,897,000 bushels.
[5] Post-war boundaries beginning this year, and therefore not comparable with earlier years.
[6] Beginning this year weighed bushels, those reported for the earlier years being measured bushels.
[7] Preliminary.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 76.—*Barley: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1924–25 to 1933–34*

Season	Percentage of receipts during—												
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
1924–25	3.2	9.9	16.2	20.1	16.6	8.4	5.9	5.2	3.8	3.4	2.2	2.7	2.4	100.0
1925–26	4.3	14.4	19.0	18.4	11.8	6.9	5.4	4.3	3.5	3.4	2.4	3.6	2.6	100.0
1926–27	5.8	16.1	21.2	12.9	8.8	7.0	5.3	5.3	3.2	3.8	3.7	3.8	3.1	100.0
1927–28	6.3	9.5	18.2	19.8	12.3	7.7	6.0	4.9	4.5	4.5	2.3	2.1	1.9	100.0
1928–29	6.1	10.4	21.8	18.7	12.1	7.1	5.9	3.6	3.7	3.2	2.7	2.4	2.3	100.0
1929–30	7.2	17.4	25.3	13.4	9.2	5.7	4.7	3.6	3.0	3.0	2.7	2.9	1.9	100.0
1930–31	9.0	8.8	24.9	16.6	10.4	6.0	5.1	4.5	3.5	3.3	3.1	3.1	1.7	100.0
1931–32	4.0	16.4	21.5	13.8	10.5	6.2	5.5	4.5	3.9	4.4	4.2	3.4	1.7	100.0
1932–33	8.6	30.5	13.8	7.5	5.6	4.7	2.8	2.6	4.1	6.6	7.6	5.3	.3	100.0
1933–34	10.0	19.1	25.6	11.7	6.6	3.9	3.4	3.4	3.1	3.6	3.1	4.0	2.5	100.0

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TABLE 77.—*Barley: Receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1926–27 to 1933–34*

Year beginning July	Grade											Total
	Choice No. 1	No. 1	Choice No. 2	Special No. 2	No. 2	Choice No. 3	No. 3	No. 4	No. 5	No. 1 feed	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1926–27 [1]	251	481	107	2,168	2,005	421	4,929	4,026	266	916	15,063	30,633
1927–28	262	2,199	90	14,913	12,151	274	16,299	6,197	183	2,875	10,923	66,366
1928–29	329	966	100	13,128	20,900	392	25,264	20,129	135	6,502	11,021	98,866
1929–30	223	700	50	9,966	5,800	315	13,907	7,269	102	3,602	5,124	47,058
1930–31	261	1,483	76	11,629	7,067	249	12,489	6,305	127	2,034	1,927	43,647
1931–32	142	568	35	6,014	2,410	130	8,958	2,743	146	865	873	22,884
1932–33	530	764	50	13,111	1,551	152	8,601	1,639	80	301	4,817	31,596
1933–34	596	959	130	14,394	2,670	239	9,693	1,620	100	805	2,765	33,971

[1] Barley grades became effective Aug. 24, 1926.

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TABLE 78.—*Barley: Commercial stocks, 1926–27 to 1934–35*

DOMESTIC BARLEY IN UNITED STATES [1]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27						7,097	6,664	6,116	5,339	3,675	2,513	2,720
1927–28	3,108	5,041	6,549	5,957	5,769	4,825	4,419	4,273	4,588	3,890	2,410	2,801
1928–29	3,467	9,318	10,681	11,067	11,744	10,926	11,985	11,399	9,998	8,412	7,373	6,861
1929–30	8,803	12,894	12,563	12,721	11,760	11,866	10,961	10,415	9,726	8,137	6,843	6,366
1930–31	6,746	10,945	16,084	15,018	14,637	13,987	14,261	12,279	9,464	7,319	6,232	6,826
1931–32	6,568	7,093	7,211	7,355	7,124	6,164	5,710	5,185	4,179	3,732	2,848	2,793
1932–33	3,440	6,651	8,976	9,380	9,862	10,245	10,415	10,121	9,848	9,599	12,181	13,417
1933–34	14,587	17,975	19,330	20,176	19,958	18,291	17,236	16,123	14,535	13,010	11,322	10,633
1934–35	9,945	13,264	17,744	17,531	19,164							

UNITED STATES BARLEY IN CANADA [2]

1926–27						272	300	64	70	59	0	13
1927–28	5	66	665	344	152	40	42	9	25	9	1	20
1928–29	0	767	4,171	5,599	2,319	1,144	302	173	170	81	92	659
1929–30	279	246	1,341	1,749	955	955	937	938	936	993	963	937
1930–31	797	652	580	444	371	338	309	291	264	243	68	45
1931–32	45	24	24	24	24	25	25	25	25	25	77	6
1932–33	1	130	114	111	21	21	21	21	21	21	21	21
1933–34	0	0	0	0	0	0	0	0	0	0	0	0
1934–35	0	0	0	0	0							

CANADIAN BARLEY IN CANADA [3]

1926–27						11,082	9,618	10,218	10,513	6,378	3,830	3,335
1927–28	2,447	1,000	3,574	6,162	7,231	7,972	8,342	8,548	8,623	8,218	4,312	2,895
1928–29	1,452	1,356	9,010	14,134	13,419	16,926	16,393	17,488	18,317	13,305	11,003	8,664
1929–30	6,997	8,285	18,101	22,701	25,027	26,495	25,989	24,685	23,422	21,507	20,827	20,065
1930–31	18,031	20,035	28,459	31,047	30,048	30,021	29,162	28,259	26,798	23,053	14,886	11,158
1931–32	10,142	8,468	11,334	11,270	9,633	9,970	9,878	9,631	9,620	7,949	6,160	4,344
1932–33	3,672	3,293	5,723	5,339	6,024	6,784	6,776	6,679	6,790	6,576	6,281	6,966
1933–34	7,783	8,917	10,623	11,940	11,868	11,605	11,045	10,808	10,536	9,801	9,211	9,060
1934–35	9,049	9,120	13,140	13,936	11,613							

CANADIAN BARLEY IN UNITED STATES [4]

1926–27						2,942	2,246	1,677	608	2,401	975	175
1927–28	19	27	27	717	1,768	1,945	1,686	1,191	557	112	483	278
1928–29	409	249	1,751	2,959	4,778	6,210	4,731	3,232	2,259	2,523	3,315	2,110
1929–30	2,277	1,711	1,654	1,999	2,637	2,818	3,006	2,928	2,781	2,715	2,376	2,376
1930–31	1,839	1,300	898	832	1,561	1,329	1,274	1,267	754	764	627	163
1931–32	119	3	4	4	649	1,587	1,587	1,552	1,479	1,272	283	57
1932–33	1	2	27	46	0	0	0	0	0	0	0	0
1933–34	0	0	0	0	0	0	0	0	0	0	0	0
1934–35	1	259	412	606	888							

[1] Includes domestic barley in store in public and private elevators in 41 markets and barley afloat in vessels or barges in harbors of lake and seaboard ports. Does not include barley in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of barley intended for local use.

[2] Includes United States barley in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include barley in transit to Canadian ports.

[3] Includes practically all Canadian barley held within Canadian boundaries, exclusive of farm and certain mill stocks.

[4] Includes Canadian barley in store and afloat at 10 United States lake and seaboard ports but not Canadian barley in transit on lakes or canals.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data for domestic and Canadian barley in United States are for stocks on the Saturday nearest the 1st day of the month; for United States and Canadian barley in Canada data are for stocks on the Friday nearest the 1st day of the month.

TABLE 79.—*Barley: Supply and distribution in continental United States, 1926–27 to 1934–35*

Year beginning August	Supply						Distribution		
	Production	Stocks on farms Aug. 1	Farm supply Aug. 1	Commercial stocks, Aug. 1[1]	Total stocks Aug. 1	Total supply Aug. 1	Net exports[2]	Disappearance	Stocks end of year
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	164,467	8,752	173,219	2,299	11,051	175,518	20,512	148,448	6,558
1927–28	240,057	3,450	243,507	3,108	6,558	246,615	38,967	197,083	10,565
1928–29	329,625	7,098	336,723	3,467	10,565	340,190	62,172	253,097	24,921
1929–30	280,242	16,123	296,365	8,798	24,921	305,163	20,630	266,110	18,423
1930–31	303,752	11,677	315,429	6,746	18,423	322,175	41,510	290,584	20,081
1931–32	198,543	13,513	212,056	6,568	20,081	218,624	4,090	205,125	9,409
1932–33	302,042	5,969	308,011	3,440	9,409	311,451	9,423	271,422	30,606
1933–34	155,825	16,019	171,844	14,587	30,606	186,431	4,932	------	------
1934–35	118,929	------	------	------	------	------	------	------	------

[1] For August 1926, Bradstreet's visible supply.
[2] Includes barley, barley flour, and malt. Barrel of flour calculated as equal to 9 bushels of grain, and 1.1 bushels of malt equal to 1 bushel of grain.

Bureau of Agricultural Economics.

TABLE 80.—*Barley: Average price per bushel received by producers, United States 1925–26 to 1934–35*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	73.5	67.1	60.8	57.6	58.0	58.4	59.5	56.3	54.6	54.8	55.1	53.7	61.4
1926–27	55.3	55.0	52.9	54.4	56.0	56.4	58.0	61.3	62.2	64.1	68.4	76.3	57.9
1927–28	71.4	69.0	69.5	66.8	66.8	71.5	73.6	75.4	79.4	81.3	84.5	81.7	68.9
1928–29	77.6	58.9	54.1	55.2	54.5	55.0	56.2	60.5	60.1	58.0	55.3	52.6	56.8
1929–30	55.6	55.8	55.2	54.7	53.8	54.6	53.9	52.5	51.4	51.7	50.5	47.5	53.9
1930–31	40.0	43.6	45.3	41.9	38.3	38.8	36.6	35.3	34.4	35.2	35.5	32.6	40.4
1931–32	30.0	28.9	30.9	31.6	35.5	35.7	35.7	35.8	37.2	37.1	33.7	28.7	32.5
1932–33	24.6	21.1	20.1	18.2	20.1	19.3	18.4	17.9	18.3	23.4	29.9	28.3	22.0
1933–34	47.6	40.2	42.8	40.7	41.6	40.6	43.7	44.7	43.7	42.5	42.2	50.9	43.3
1934–35	52.6	63.5	78.2	75.5	75.9	79.7	------	------	------	------	------	------	[1] 71.0

[1] Preliminary.

Bureau of Agricultural Economics; based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 yearbook, table 90. Only monthly prices are comparable.

TABLE 81.—*Barley, No. 2: Weighted average price per bushel of reported cash sales, Minneapolis, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	72	66	65	63	65	65	62	62	63	65	64	67	67
1926–27[1]	63	62	65	64	67	69	71	72	77	88	88	81	71
1927–28[1]	77	72	73	77	83	84	87	90	92	93	94	85	84
1928–29[1]	65	63	63	62	62	66	70	67	65	60	60	69	65
1929–30[2]	62	63	59	60	60	58	57	56	57	56	50	48	59
1930–31[2]	53	54	52	48	47	44	44	44	48	45	39	42	47
1931–32[2]	45	50	50	51	51	51	52	53	51	44	35	31	48
1932–33[2]	31	32	29	31	29	26	25	30	40	45	43	64	39
1933–34[2]	58	69	67	63	68	71	71	70	68	72	85	[3] 91	70
1934–35[3]	100	116	110	117	120	------	------	------	------	------	------	------	------

[1] No. 2 Barley, including Special No. 2.
[2] Special No. 2 Barley, August 1929 to June 1934.
[3] No. 2 Malting Barley, July 1934 to end of table.

Bureau of Agricultural Economics; computed by weighting selling prices by number of car lots sold, as reported in Minneapolis Daily Market Record.
Prices 1909–10 to 1924–25 appear in 1932 Yearbook, table 89.

TABLE 82.—*Barley, excluding flour and malt: International trade, average 1925–26 to 1929–30, annual 1930–31 to 1933–34*

Country	Year beginning July									
	Average 1925–26 to 1929–30		1930–31		1931–32		1932–33		1933–34 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
United States	31,869	0	10,302	0	5,084	0	9,155	0	5,935	[2] 30
Rumania	30,308	0	74,095	2	[3] 32,767	[3] 0	[3] 23,214	[3] 0	[3] 31,734	[3] 9
Canada	28,724	14	16,603	1	14,449	2	6,750	1	1,547	2
Union of Soviet Socialist Republics	16,561	0	49,831	0	37,544	0	16,555	0	25,898	0
Argentina	9,355	[4] 6	11,612	0	13,822	0	17,431	0	24,080	0
Poland	7,120	90	6,091	2	6,550	0	7,355	2	6,968	0
Czechoslovakia	5,301	366	6,252	8	4,121	4	7,869	4	2,331	6
Algeria	4,701	750	3,076	782	1,287	5,656	306	4,405	2,345	1,041
Tunis	4,291	[4] 477	621	894	1,013	1,158	6,253	80	307	1,223
Chile	2,936	0	1,166	0	1,079	0	595	0	3,744	0
Hungary	2,611	3	1,231	7	108	81	2,870	0	2,499	0
British India	2,169	-------	261	5	1,793	0	11	41	7	-------
Bulgaria	1,650	0	3,307	0	892	0	276	0	1,176	0
Australia	1,235	1	3,467	0	3,453	0	3,178	1	[3] 2,806	[3] 0
Yugoslavia [5]	790	[4] 412	160	306	62	130	27	11	445	6
Spain	531	379	335	0	44	0	118	0	94	0
Sweden	507	13	4	41	41	5	3	0	9	0
Egypt	311	213	5	239	3	661	230	[6] —2	380	1
Total	150,970	2,724	188,419	2,287	124,112	7,697	102,196	4,543	112,305	2,318
PRINCIPAL IMPORTING COUNTRIES										
Germany	642	83,542	423	36,660	38	34,923	8	8,536	3	15,717
United Kingdom	-------	32,134	-------	37,827	-------	30,797	-------	26,750	-------	42,595
Netherlands	790	14,460	1,232	30,204	563	20,030	220	17,798	73	23,969
Belgium	258	13,586	2,200	21,566	3,427	20,327	2,985	19,194	1,365	18,410
Denmark	2,891	3,494	2,569	30,974	990	8,200	931	4,881	2,005	3,013
Switzerland	0	3,306	1	5,770	2	6,383	2	9,031	1	4,756
Austria	[7] 134	3,163	36	4,644	3	4,350	3	3,872	5	5,434
France	1,044	2,830	87	15,100	34	19,515	9	16,705	1	8,261
Norway	0	1,382	0	2,293	0	1,737	0	345	0	613
Irish Free State	430	885	42	595	52	996	-------	645	-------	447
Greece	0	593	0	171	0	355	0	43	0	7
Estonia	0	244	0	34	0	0	0	0	0	0
Italy	23	209	0	1,206	0	1,382	1	1,224	1	2,245
Total	6,212	159,828	6,590	187,044	5,109	148,995	4,159	109,024	3,454	125,467

[1] Preliminary.
[2] Imports for consumption.
[3] Monthly Crop Report and Agricultural Statistics, International Institute of Agriculture.
[4] 3-year average.
[5] Calendar year.
[6] Excess of reexports over imports.
[7] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 83.—*Flaxseed: Acreage, production, value, foreign trade, and net supply, United States, 1909–34*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1[1]	Farm value, basis Dec. 1 price	Price per bushel of No. 1 flaxseed at Minneapolis, year beginning Aug. 1[2]	Flaxseed, including linseed oil, in terms of seed, year beginning September[3]			Net supply
							Imports	Exports, domestic and foreign	Net imports[4]	
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1909	*2,083*	*9.4*	*19,513*							
1909	2,083	9.5	19,699	152.8	30,093	197	6,074	152	5,922	25,621
1910	2,467	5.2	12,718	231.7	29,472	250	12,010	73	11,937	24,655
1911	2,757	7.0	19,370	182.1	35,272	218	7,848	126	7,722	27,092
1912	2,851	9.8	28,073	114.7	32,202	142	3,845	897	2,948	31,021
1913	2,291	7.8	17,853	119.9	21,399	150	9,772	216	9,556	27,409
1914	1,645	8.4	13,749	126.0	17,318	170	12,729	571	12,158	25,907
1915	1,387	10.1	14,030	174.0	24,410	200	14,441	313	14,128	28,158
1916	1,474	9.7	14,296	248.6	35,541	280	10,946	507	10,439	24,735
1917	1,984	4.6	9,164	296.6	27,182	370	14,042	467	13,575	22,739
1918	1,910	7.0	13,369	340.1	45,470	407	9,230	482	8,748	22,117
1919	*1,861*	*5.3*	*6,653*							
1919	1,293	5.2	6,770	442.1	29,932	473	26,483	467	26,016	32,786
1920	1,647	6.6	10,900	232.8	25,375	220	16,174	219	15,955	26,855
1921	1,143	7.1	8,107	165.4	13,411	216	23,389	149	23,240	31,347
1922	1,113	9.5	10,520	207.6	21,836	259	29,009	161	28,848	39,368
1923	2,015	8.2	16,563	212.5	35,192	244	19,557	145	19,412	35,975
1924	*3,435*	*8.2*	*28,246*							
1924	3,535	8.8	31,237	217.9	68,055	263	12,849	124	12,725	43,962
1925	3,022	7.4	22,337	226.4	50,582	253	20,858	148	20,710	43,047
1926	2,736	6.8	18,537	203.2	37,665	225	24,155	112	24,043	42,580
1927	2,763	9.1	25,183	192.5	48,488	221	18,177	120	18,057	43,240
1928	2,611	7.3	19,140	193.9	37,118	229	23,611	106	23,505	42,645
1929	*2,966*	*5.1*	*15,046*							
1929	3,047	5.2	15,910	281.2	44,733	311	18,537	109	18,428	34,338
1930	3,736	5.7	21,287	161.0	34,278	176	9,938	69	9,869	31,156
1931	2,416	4.9	11,798	116.6	13,758	136	10,949	46	10,903	22,701
1932	1,975	5.9	11,671	88.1	10,280	118	9,414	39	9,375	21,046
1933	1,328	5.2	6,947	162.6	11,296	187	16,806	38	16,768	23,715
1934[5]	974	5.4	5,253	172.7	9,070					

[1] Beginning with 1919 prices are weighted average prices for crop-marketing season.

[2] The figures shown, 1909–20, are averages of daily closing prices compiled from annual reports of the Minneapolis Chamber of Commerce; beginning 1921 averages of daily prices weighted by car-lot sales, compiled from Minneapolis Daily Market Record.

[3] Compiled from Commerce and Navigation of the United States, 1909–17; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States June, July, and August issues, 1919–26, January, June, July, and August issues, 1927–34, and official records of the Bureau of Foreign and Domestic Commerce. 1 bushel of flaxseed weighs 56 pounds; 1 bushel of seed yields approximately 2½ gallons of oil; and 1 gallon of oil weighs 7½ pounds.

[4] Total imports minus total exports (domestic plus foreign). Beginning 1933–34 imports for consumption minus domestic exports. (See introductory text.)

[5] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text. Italic figures are census returns. See 1927 Yearbook, table 89, for data for earlier years.

TABLE 84.—*Flaxseed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Wisconsin	8	4	5	11.8	10.0	11.0	92	40	55	150	163
Minnesota	720	682	580	9.4	6.4	6.0	6,241	4,365	3,480	166	176
Iowa	19	28	21	9.9	6.5	6.5	184	182	136	162	176
Missouri	3	2	2	[2] 5.8	5.5	3.5	15	11	7	155	155
North Dakota	1,296	462	268	6.6	3.9	3.5	7,351	1,802	938	159	167
South Dakota	530	46	17	6.6	2.5	2.5	3,065	115	42	159	169
Nebraska	14	2	[3]	7.8	6.0	-------	91	12	-------	145	-------
Kansas	36	36	50	6.2	6.2	5.5	215	223	275	148	152
Montana	274	64	19	5.9	3.0	4.0	1,329	192	76	144	156
Wyoming	16	2	1	5.8	2.5	2.0	81	5	2	138	155
California	-------	-------	11	-------	-------	22.0	-------	-------	242	-------	177
United States	2,915	1,328	974	7.3	5.2	5.4	18,664	6,947	5,253	162.6	172.7

[1] Preliminary.
[2] 8-year average.
[3] Less than 500 acres.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 85.—*Flaxseed: Production, world and selected countries, 1919–20 to 1934–35*

Crop year	World, including Union of Soviet Socialist Republics [1]	Northern Hemisphere, including Union of Soviet Socialist Republics	Europe, including Union of Soviet Socialist Republics	Selected countries							
				Argentina	Union of Soviet Socialist Republics	United States	India	Canada	Poland	Lithuania [2]	Uruguay
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919–20	86,465	36,877	13,425	49,890	[3] 8,000	6,770	9,400	5,473	556	827	932
1920–21	113,534	52,361	14,894	60,006	9,204	10,900	16,760	7,998	637	1,011	966
1921–22	75,121	38,427	14,424	36,046	9,752	8,107	10,800	4,112	856	909	519
1922–23	98,745	50,236	16,813	47,577	11,043	10,520	17,440	5,008	1,816	1,108	719
1923–24	125,098	65,797	19,664	58,005	13,379	16,563	21,320	7,140	2,129	1,056	1,178
1924–25	131,221	84,460	23,982	45,084	16,960	31,237	18,520	9,695	1,872	1,332	1,542
1925–26	159,128	81,876	32,391	75,113	23,991	22,337	20,040	6,237	2,250	1,571	2,030
1926–27	153,945	71,080	28,861	80,783	20,877	18,537	16,080	5,995	2,472	1,574	1,970
1927–28	158,194	76,715	29,146	82,672	21,814	25,183	16,240	4,885	2,790	1,405	1,954
1928–29	150,000	68,607	30,530	78,377	23,690	19,140	13,920	3,614	2,413	1,000	2,030
1929–30	122,764	69,289	37,776	50,004	28,060	15,910	12,880	2,060	3,173	1,718	3,228
1930–31	155,100	79,376	37,815	70,264	29,957	21,287	15,200	4,399	2,335	1,532	5,056
1931–32	166,000	71,100	38,927	89,067	33,069	11,798	15,080	2,465	1,941	1,003	4,837
1932–33	133,000	68,000	36,020	62,006	31,494	11,671	16,640	2,719	1,640	626	1,475
1933–34	121,300	61,500	35,837	56,690	30,707	6,947	16,240	632	1,774	823	2,876
1934–35	-------	-------	-------	72,043	-------	5,253	15,080	910	-------	1,015	4,747

[1] Excludes a few minor producing countries for which no statistics are available and which do not enter into world trade.
[2] Flax and hemp.
[3] Estimate of Bureau of Agricultural Economics.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.
Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere, which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 86.—*Flax: Acreage and production in specified countries, average 1921–22 to 1925–26, annual 1931–32 to 1934–35*

Country	Acreage					Seed production					Fiber production				
	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]	Average 1921–22 to 1925–26	1931–32	1932–33	1933–34	1934–35 [1]
NORTHERN HEMISPHERE															
North America:	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canada	769,552	627,430	461,500	243,600	227,000	6,438	2,465	2,719	632	910					
United States	2,165,600	2,416,000	1,975,000	1,328,000	974,000	17,753	11,798	11,671	6,947	5,253					
Total North America	2,935,152	3,043,430	2,436,500	1,571,600	1,201,000	24,191	14,263	14,390	7,579	6,163					
Europe:															
United Kingdom:															
England and Wales	7,801	3,186	1,311								12,123	3,091	2,565	4,867	
Northern Ireland	36,267	7,440	6,093	9,784	15,684						2,662	267	190		
Irish Free State	8,288	647	458								685	185			
Sweden [2]	5,651	1,322	1,322			6	1				16,166	9,918	3,395	8,695	9,921
Netherlands	27,839	16,185	4,930	12,071	14,930	324	139				40,004	25,370	15,078	37,180	45,335
Belgium	47,290	36,032	21,000	27,000	34,000	410	326	202	239	270	29,123	13,788	12,100	20,285	29,495
France	45,508	25,619	22,644	36,927	57,975	363	233	224	183	378	[3] 1,278	1,226	1,173		
Spain	[3] 3,856	2,231	2,118			48	11	10			5,159	4,837	4,888	3,979	4,559
Italy	51,700	24,287	11,675	9,938	9,691	451	184	124	87	82				34,336	56,813
Germany	104,027	16,368	11,149	12,081	21,663				125	249	7,433	10,701	5,993	6,260	4,960
Austria	9,055	12,891	8,000	3,000	2,768	55	33	16	17	19	28,397	7,469	7,243	7,931	11,178
Czechoslovakia	56,438	22,931	16,331	17,539	23,000	349	100	95	105	160	5,237	13,264	5,136	7,442	2,304
Hungary	6,918	46,851	15,057	20,000	37,000	48	310	95	202	203	18,465	23,193	21,627		
Yugoslavia	33,179	30,764	26,378	28,000			40	36			188	176	164	235	1,271
Bulgaria	635	1,759	998	1,171	4,317	3	19	6	8	34	[4] 10,770	15,756	12,322		
Rumania	40,021	68,560	54,080	46,391	63,000	224	523	374	420		87,774	75,611	56,431	58,686	
Poland	229,360	252,188	231,478	234,861	262,914	1,785	1,941	1,640	1,774		62,119	46,628	31,442	39,971	49,752
Lithuania [2]	144,360	139,000	105,512	135,164	150,000	1,195	1,003	626	823	1,015	46,964	28,660	20,812	27,337	36,310
Latvia [2]	132,076	104,000	78,000	103,000	114,000	783	499	352	485	596	22,187	13,056	8,449	11,369	16,160
Estonia	75,365	45,296	36,222	41,000	53,000	387	253	153	244		3,239	3,002	3,282	3,959	
Finland [5]	14,761	10,000	10,000	11,000	11,000										
Union of Soviet Socialist Republics	2,799,900	7,754,245	7,796,005	6,757,196	5,624,000	15,025	33,069	31,494	30,707		644,969	1,212,530	1,102,315	1,234,593	
Total European countries reporting all years, including Union of Soviet Socialist Republics	3,821,520	8,583,652	8,429,174	7,478,123	6,498,942	3,657	2,707	1,740	2,149	2,757	262,977	173,867	114,700	170,684	211,245

North Africa:															
Morocco	40,844	89,000	53,487	30,000	31,000	363	932	369	125						
Tunis	5,996	7,413	5,560			30	47	44							
Egypt	3,181	2,698	2,346	3,472	5,000	31	36	28	49	74	2,090	1,178	1,515	2,494	3,192
Asia:															
Turkey		68,612	23,299	85,000	35,000		172	190	205	195					
India	3,216,200	3,009,000	3,309,000	3,299,000	3,257,000	17,624	15,080	16,640	16,240	15,080					
Japanese Empire:															
Japan	49,911	25,150	33,685			304	123	87			61,242	38,549	25,772		
Chosen	3,386	2,651	862				28	4			1,141	243	47		
Total Northern Hemisphere countries reporting all years	10,016,897	14,796,392	14,253,806	12,467,195	11,027,942	45,503	32,258	32,988	26,182	24,321	265,067	175,045	116,201	173,178	214,437
Estimated Northern Hemisphere total	10,150,000	15,000,000	14,300,000	12,500,000		64,700	71,100	68,000	61,500		1,144,200	1,581,400	1,377,300	1,589,250	
SOUTHERN HEMISPHERE															
Uruguay	116,279	442,765	337,175	259,425	452,771	1,198	4,837	1,475	2,876	4,747					
Argentina [6]	5,224,757	8,178,000	5,654,809	6,853,393	6,918,800	52,365	89,067	62,006	56,690	72,043					
New Zealand	8,693	1,765	333	1,441		121	26	5	25						
Total Southern Hemisphere countries reporting all years	5,341,036	8,620,765	5,991,984	7,112,818	7,371,571	53,563	93,904	63,481	59,566	76,790					
Total Northern and Southern Hemisphere countries reporting all years	15,357,933	23,417,157	20,245,790	19,580,013	18,399,513	99,066	126,162	96,469	85,788	101,059	265,067	175,045	116,201	173,178	214,437
Estimated world total [7]	15,502,000	23,650,000	20,700,000	20,150,000		120,000	166,000	133,000	121,300		1,144,200	1,581,400	1,377,300	1,589,250	

[1] Preliminary.
[2] Flax and hemp.
[3] 4-year average.
[4] 2-year average.
[5] Where changes in territory have occurred averages are estimates for territory within present boundary.
[6] Acreage figures are for area sown; figures of area harvested are not available for all years, but over a 16-year period the harvested area averaged 10 percent below the sown area.
[7] Excludes a few minor producing countries for which no statistics are available and which do not enter into world trade.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere are combined with those of the Southern Hemisphere which immediately follow; thus, for 1934–35 the crop harvested in the Northern Hemisphere countries in 1934 is combined with the Southern Hemisphere harvest which begins late in 1934 and ends early in 1935.

TABLE 87.—*Flaxseed: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1924–25 to 1933–34*

Year	Percentage of receipts during—												
	July[1]	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Year
	Pct.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
1924–25	.5	5.3	23.0	34.5	17.8	6.7	2.8	2.7	1.8	1.4	1.2	1.3	100.0
1925–26	1.1	11.1	34.3	23.5	12.4	5.6	2.7	2.0	1.8	1.5	1.9	2.1	100.0
1926–27	1.4	12.0	25.5	32.5	11.2	6.3	2.4	2.3	1.7	.9	1.7	2.1	100.0
1927–28	1.0	6.1	32.9	33.4	10.5	5.3	3.0	1.9	1.9	1.2	1.7	1.1	100.0
1928–29	1.1	7.2	31.1	35.3	11.6	5.3	2.1	1.2	1.4	1.0	1.5	1.2	100.0
1929–30	1.9	19.9	35.6	23.9	9.1	3.3	1.3	1.1	1.0	.8	1.0	1.1	100.0
1930–31	2.2	21.3	31.4	18.5	9.0	4.3	2.6	2.5	2.0	2.3	2.1	1.8	100.0
1931–32	6.4	31.0	26.9	17.0	5.9	2.8	2.0	2.0	1.4	1.4	1.8	1.4	100.0
1932–33	3.7	26.8	28.2	15.1	6.9	4.7	3.3	1.6	1.4	2.0	2.9	3.4	100.0
1933–34	3.0	35.5	29.9	11.1	4.5	3.3	2.1	1.8	2.0	1.8	2.7	2.3	100.0

[1] July marketings are composed of receipts of the current year's crop from Kansas, Nebraska, Iowa, and other States in the southern part of the flax belt and receipts of the previous year's crop from the Dakotas, Minnesota, and Montana.

Bureau of Agricultural Economics. Data for earlier years in 1928 Yearbook, table 96.

TABLE 88.—*Flaxseed: Receipts at Minneapolis, by months, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*
1925–26	1,094	3,331	2,745	1,107	722	375	276	320	357	431	360	294	11,412
1926–27	830	1,539	2,905	1,103	669	415	318	273	169	257	277	145	8,900
1927–28	441	4,465	3,894	1,065	490	716	495	471	311	439	457	143	13,387
1928–29	652	3,454	3,690	1,278	601	373	328	328	255	244	330	180	11,713
1929–30	1,249	2,939	1,759	624	403	180	116	133	142	390	313	162	8,410
1930–31	2,436	2,295	1,213	912	472	401	368	449	359	355	511	154	9,925
1931–32	2,110	1,476	840	321	264	161	98	97	103	164	168	66	5,868
1932–33	1,994	1,255	696	216	168	329	72	85	134	352	307	112	5,720
1933–34	1,024	1,120	335	202	119	141	92	119	137	273	256	100	3,918
1934–35	633	1,169	875	246	242	-------	-------	-------	-------	-------	-------	-------	-------

Bureau of Agricultural Economics; compiled from annual reports of the Minneapolis Chamber of Commerce. Data for earlier years in 1928 Yearbook, table 98.

TABLE 89.—*Flaxseed: Commercial stocks, 1926–27 to 1934–35*

DOMESTIC FLAXSEED IN UNITED STATES[1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	-------	-------	-------	-------	-------	-------	2,684	2,328	2,089	2,014	1,834	1,429
1927–28	1,445	909	584	1,583	5,353	4,703	4,247	3,409	2,816	2,178	1,691	882
1928–29	781	596	317	704	2,721	1,343	1,397	1,142	780	681	547	398
1929–30	434	370	159	924	1,179	610	985	867	740	696	589	519
1930–31	433	314	467	2,330	2,202	1,431	1,371	1,357	1,273	1,184	972	784
1931–32	802	672	745	1,383	1,920	1,585	873	639	492	555	686	874
1932–33	901	763	1,596	2,668	2,095	1,150	1,212	1,211	1,219	1,140	1,242	909
1933–34	960	875	1,117	1,834	1,482	984	1,039	963	983	980	793	646
1934–35	646	623	672	1,008	1,218	1,210	-------	-------	-------	-------	-------	-------

[1] Includes domestic flaxseed in store in public and private elevators in 41 markets and flaxseed afloat in vessels or barges in harbors of lake and seaboard ports. Does not include flaxseed in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of flaxseed intended for local use.

TABLE 89.—*Flaxseed: Commercial stocks, 1926–27 to 1934–35*—Continued

CANADIAN FLAXSEED IN CANADA [2]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27							3,188	3,319	3,427	3,463	2,947	2,577
1927–28	2,105	1,972	1,535	1,403	1,899	2,747	2,975	3,071	3,069	2,938	2,787	2,107
1928–29	1,770	1,168	534	500	1,327	1,319	1,528	1,381	1,328	1,293	1,080	932
1929–30	1,619	444	352	780	1,230	1,275	1,089	1,049	982	973	849	693
1930–31	471	434	449	1,300	1,904	2,404	2,134	2,080	2,104	2,059	1,756	1,253
1931–32	975	742	758	883	1,588	1,549	1,467	1,396	1,363	1,383	1,267	1,404
1932–33	1,347	1,280	1,264	1,362	1,437	1,581	1,431	1,482	1,460	1,358	1,393	1,088
1933–34	1,140	1,050	1,013	984	904	699	603	604	595	565	541	507
1934–35	474	450	469	503	627	576						

[2] Includes pratically all Canadian flaxseed held within Canadian boundaries, exclusive of farm and certain mill stocks.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data for domestic flaxseed in United States are for stocks on the Saturday nearest the 1st day of the month; for Canadian flaxseed in Canada data are for stocks on the Friday nearest the 1st day of the month.

TABLE 90.—*Flaxseed: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	229.5	227.9	228.9	228.1	232.1	224.5	216.4	202.9	207.0	205.4	203.9	208.7	226.4
1926–27	215.7	211.3	197.5	195.5	196.4	193.0	195.7	195.1	196.1	205.7	204.7	198.4	203.2
1927–28	203.7	197.1	191.2	184.2	185.3	188.4	189.9	194.8	198.4	210.5	209.0	195.5	192.5
1928–29	181.7	181.6	198.1	198.1	205.4	211.1	218.4	219.2	216.4	214.7	217.0	233.2	193.9
1929–30	259.5	285.4	300.5	285.1	287.7	279.8	275.0	261.5	263.7	245.9	245.6	192.7	281.2
1930–31	191.9	168.1	152.2	133.6	137.6	131.7	126.2	130.4	128.6	129.9	120.1	132.6	161.0
1931–32	120.4	113.1	106.5	121.9	118.7	116.1	116.0	118.7	116.1	106.7	86.2	80.8	116.6
1932–33	79.3	88.1	87.7	87.1	82.8	90.8	87.1	88.0	94.8	118.6	136.3	188.8	88.1
1933–34	163.0	164.4	149.0	155.1	151.1	161.4	164.8	160.4	155.0	163.7	167.8	168.0	162.6
1934–35	176.7	175.2	167.1	161.7	168.8								[1] 172.7

[1] Preliminary.

Bureau of Agricultural Economics; based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 101. Only monthly prices are comparable.

TABLE 91.—*Flaxseed, No 1: Weighted average price per bushel of reported cash sales, Minneapolis 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	254	259	258	256	261	250	243	232	234	230	233	244	253
1926–27	238	233	221	222	224	223	225	222	224	234	225	223	225
1927–28	222	221	213	213	215	224	227	233	236	246	238	221	221
1928–29	205	209	228	235	239	245	255	249	245	245	248	276	229
1929–30	279	323	332	324	322	308	305	292	292	268	271	232	311
1930–31	200	190	180	165	161	157	156	158	157	155	148	164	176
1931–32	141	137	132	146	143	141	140	140	135	121	105	98	136
1932–33	101	113	113	106	109	116	110	113	128	143	172	205	118
1933–34	188	188	180	177	177	190	189	182	182	191	191	190	187
1934–35	205	198	190	186	199								

Bureau of Agricultural Economics; computed by weighting selling price by number of car lots sold, as reported in Minneapolis Daily Market Record.

Prices 1899–1900 to 1924–25 appear in 1932 Yearbook, table 100.

TABLE 92.—*Flaxseed: International trade, average 1925–29, annual, 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Argentina	63,699	0	46,047	0	74,022	1	79,823	0	54,812	0
British India	9,442	763	10,455	736	4,500	538	3,088	574	13,897	773
Canada	2,828	568	1,397	809	1,045	346	367	455	615	150
Uruguay	2,084	0	3,116	0	5,236	0	3,087	0		0
Lithuania	811	0	792	0	439	0	304	0	237	0
Latvia	644	560	423	304	188	161	96	136	135	188
Morocco	363	0	318	0	671	0	533	0	104	0
Eritrea [2]	188	0	37	0	19	0	53	0		0
China	117	0	23	0	170	0	[3] 88	0	545	0
Estonia	86	31	99	3	7	1	2	8	1	50
Rumania	56	9	78	0	384	0	207	0		
Tunis	47	0	25	0	15	0	59	0	8	0
Total	80,365	1,931	62,810	1,852	86,696	1,047	87,707	1,173	70,354	1,161
PRINCIPAL IMPORTING COUNTRIES										
United States	0	20,540	0	12,662	0	14,480	0	7,919	0	13,825
Netherlands	208	13,639	260	10,029	88	16,524	135	17,700	79	11,630
Germany	80	13,602	47	9,274	25	13,404	35	17,572	51	14,105
United Kingdom	0	13,439	0	8,915	0	13,517	0	14,485	0	9,829
France	20	7,368	27	7,499	30	10,380	13	9,290	11	10,404
Belgium	301	4,052	121	2,990	366	6,611	248	6,557	122	4,915
Italy	1	2,380	0	2,091	0	2,412	0	2,702	0	2,954
Sweden	0	1,477	0	1,425	0	1,884	0	1,708	0	1,384
Australia [3]	0	957	0	605	0	555	0	845	0	
Czechoslovakia	10	885	33	796	12	1,041	6	1,426	4	540
Denmark	0	696	0	643	0	745	0	953	0	762
Spain	3	663	0	749	0	832	0	922	0	642
Norway	0	602	0	637	0	515	0	721	0	735
Poland	275	522	54	267	13	488	6	485	3	511
Japan	0	464	0	224	1	330	0	263	0	842
Finland	0	222	0	141	0	123	0	135	0	156
Hungary	27	92	263	188	75	4	17	53	12	54
Austria	0	15	1	16	0	19	0	13	0	15
Total	925	81,615	806	59,151	610	83,864	460	83,749	282	73,303

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Does not include Manchuria after June 30, 1932.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 93.—*Flaxseed crushed and linseed oil produced, United States, 1924–25 to 1933–34*

Year	Flaxseed crushed					Oil produced				
	October–December	January–March	April–June	July–September	Total	October–December	January March	April–June	July–September	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1924–25	11,530	12,516	9,128	7,822	40,996	211,954	229,544	169,980	146,306	757,784
1925–26	11,798	10,651	7,767	9,500	39,716	217,992	194,607	144,950	174,057	731,606
1926–27	11,085	11,037	8,963	9,051	40,136	206,496	202,162	167,232	169,274	745,164
1927–28	12,699	11,885	9,608	7,603	41,795	238,046	223,751	179,532	141,889	783,218
1928–29	11,191	10,839	9,962	10,321	42,313	206,273	202,353	187,019	191,977	787,622
1929–30	9,947	7,966	7,270	5,887	31,070	182,228	145,970	130,863	108,236	567,297
1930–31	7,391	6,571	7,205	7,610	28,777	131,257	118,417	130,635	141,205	521,514
1931–32	7,112	5,393	3,584	3,739	19,828	130,479	99,783	67,296	68,503	366,061
1932–33	4,998	4,365	4,268	6,074	19,705	90,987	79,595	79,035	113,413	363,030
1933–34 [1]	6,760	5,156	5,016	4,293	21,225	133,906	97,452	98,026	85,038	414,422

[1] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census, animal and vegetable fats and oils. Figures for 1919–20 to 1923–24 are in 1934 Yearbook, table 91.

TABLE 94.—*Linseed oil, raw: Average car-lot price per gallon in barrels, New York, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	102	103	[1] 99	96	95	87	85	80	81	81	84	89	90
1926–27	90	83	81	81	80	79	78	77	81	84	84	80	82
1927–28	80	77	74	73	72	74	74	74	74	78	77	75	75
1928–29	73	74	76	77	75	75	76	76	76	77	79	92	77
1929–30	96	116	118	111	110	105	105	105	106	105	105	104	107
1930–31	97	78	74	70	68	66	69	71	68	66	64	68	72
1931–32	63	57	55	56	53	50	46	50	49	46	44	42	51
1932–33	41	45	47	50	52	55	54	56	58	65	70	81	56
1933–34	79	78	72	72	71	69	69	70	70	72	75	73	72
1934–35	74	70	68	65	66	------	------	------	------	------	------	------	------

[1] Beginning October 1925, prices are quoted on pound basis and have been converted to price per gallon by multiplying by 7.5.

Bureau of Agricultural Economics; compiled from Oil, Paint and Drug Reporter, average of weekly ranges.

Data for 1909–10 to 1924–25 are available in the 1928 Yearbook, table 105.

TABLE 95.—*Linseed oil: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Netherlands	158,136	833	172,024	943	161,433	952	126,030	455	105,115	481
United Kingdom	49,400	47,546	35,157	96,051	32,258	83,005	30,222	56,965	24,127	16,204
Belgium	23,503	2,303	29,324	1,237	22,743	1,518	34,744	1,353	20,765	1,105
Sweden	1,267	668	1,435	312	1,952	469	1,228	684	626	220
Total	232,306	51,350	237,940	98,543	218,386	85,944	192,224	59,457	150,633	18,010
PRINCIPAL IMPORTING COUNTRIES										
Germany	8,343	43,213	9,288	33,931	14,680	15,517	6,700	35,301	3,047	25,780
Switzerland	27	13,286	49	12,981	38	19,474	3	19,667	39	17,399
Brazil	0	9,558	0	5,758	0	4,214	0	2,909	0	------
Austria	459	8,997	165	9,104	90	12,563	49	9,200	277	8,646
France	4,378	8,138	11,278	5,480	9,608	6,423	9,555	3,172	9,592	1,090
United States	2,351	7,946	1,592	2,125	1,094	235	842	25	828	11,257
Finland	0	5,380	0	5,843	0	6,648	0	4,889	0	5,102
Netherlands Indies	0	5,161	0	5,448	0	3,900	0	2,880	0	[2] 1,878
Australia [3]	25	4,968	24	1,643	27	2,277	27	3,024	------	------
Egypt	3	4,935	0	1,555	2	697	1	835	0	1,450
Union of South Africa	0	4,770	0	4,442	0	5,165	0	3,713	0	5,756
Hungary	12	4,246	989	1,225	135	823	312	162	0	412
New Zealand	2	3,789	0	2,892	0	3,020	0	2,262	0	2,401
Italy	403	3,574	244	2,210	169	6,436	216	4,079	177	2,031
Norway	54	3,314	64	1,703	86	9,186	120	2,547	222	1,896
Chile	4	2,712	22	2,605	3	1,931	4	357	------	522
Irish Free State	0	2,319	0	3,132	0	2,941	0	2,853	0	------
British India	728	2,092	922	1,555	358	1,548	343	1,675	419	1,393
Denmark	419	2,081	3	2,424	0	1,795	34	812	39	252
British Malaya	126	1,550	85	1,380	77	1,306	69	725	57	957
Bulgaria	0	1,484	0	1,353	0	1,352	0	998	0	703
Yugoslavia	52	1,390	1	1,028	1	2,177	1	1,045	1	380
Czechoslovakia	257	1,369	542	578	106	558	507	138	11	22
China	0	1,242	0	903	0	1,462	[4] 98	[4] 1,269	2	1,335
Philippine Islands	0	1,210	0	1,621	0	1,322	0	1,690	0	------
Canada	49	819	33	1,109	14	1,048	12	806	76	1,604
Argentina	265	743	35	646	36	488	39	290	49	257
Tunis	0	668	0	912	0	870	0	862	0	932
Greece	[5] 55	419	------	263	------	451	------	364	------	77
Total	18,012	151,373	25,336	115,849	26,524	115,827	18,932	108,549	14,836	93,562

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.
[4] Does not include Manchuria after June 30, 1932.
[5] 3-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted. Conversions made on the basis of 7.5 pounds to the gallon.

TABLE 96.—*Linseed meal, 34 percent protein: Average price per ton, Minneapolis, by months, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	43.80	42.88	42.30	42.88	44.50	46.40	47.62	45.50	48.25	49.00	46.38	46.60	45.51
1926–27	44.81	43.12	43.70	43.88	44.00	45.60	47.35	47.75	48.10	47.25	45.90	45.50	45.58
1927–28	46.25	45.95	45.30	46.40	47.45	48.00	49.00	50.80	51.40	53.00	51.10	49.10	48.65
1928–29	45.75	47.55	53.85	54.90	57.00	56.90	59.00	56.60	52.10	51.90	51.20	53.05	53.32
1929–30	53.10	56.40	55.70	55.10	55.00	54.10	51.75	50.30	54.75	48.70	44.75	42.75	51.87
1930–31	42.20	42.10	40.25	38.90	37.90	36.40	34.65	31.60	30.75	27.70	24.95	25.60	34.42
1931–32	26.20	25.75	25.70	31.40	32.10	30.15	28.75	28.00	27.30	24.25	21.40	20.40	26.78
1932–33	21.40	22.40	21.50	19.80	19.15	19.70	19.30	20.00	21.65	25.20	27.50	[1] 37.40	21.60
1933–34	36.10	31.75	31.70	31.90	31.65	32.00	31.90	30.15	30.90	29.20	32.25	33.40	31.91
1934–35	41.75	44.00	41.40	42.00	44.30	------	------	------	------	------	------	------	------

[1] Beginning July 1933, quoted as 37 percent protein. July not included in yearly average.

Bureau of Agricultural Economics. Compiled from reports made to the Bureau. Quoted "per ton, bagged, in car lots, sight-draft basis."

TABLE 97.—*Rice, rough: Acreage, production, value, shipments, and foreign trade, United States, 1909–34*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Shipments from United States to Alaska, Hawaii, and Puerto Rico [2]	Foreign trade, mostly milled rice, but including rice bran, meal, and broken rice, reduced to rough basis, year beginning July [3]		
							Domestic exports	Imports	Net balances [4]
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1909	610	33.8	20,607	79.5	16,392	4,276	964	8,114	−6,857
1910	723	33.9	24,510	67.8	16,624	4,606	1,082	7,516	−6,211
1911	696	32.9	22,934	79.7	18,274	4,890	1,420	6,842	−5,047
1912	723	34.7	25,054	93.5	23,423	4,805	1,401	7,996	−6,139
1913	827	31.1	25,744	85.8	22,090	5,244	807	10,447	−9,000
1914	694	34.1	23,649	92.4	21,849	4,640	2,789	9,979	−5,059
1915	803	36.1	28,947	90.6	26,212	5,191	4,391	9,516	−2,540
1916	869	47.0	40,861	88.9	36,311	5,818	6,529	7,778	+348
1917	981	35.4	34,739	189.6	65,879	4,878	7,009	16,418	−6,026
1918	1,119	34.5	38,606	191.8	74,042	5,995	6,953	13,094	+1,644
1919	1,070	39.9	42,689	266.0	113,570	5,547	17,402	6,477	+14,401
1920	1,299	39.8	51,648	118.1	61,006	6,614	15,871	3,435	+14,603
1921	990	39.7	39,274	94.8	37,239	7,179	19,494	2,650	+18,773
1922	1,053	39.6	41,663	92.9	38,686	8,290	13,344	2,503	+12,018
1923	874	38.0	33,238	110.2	36,615	9,094	8,199	1,376	+7,322
1924	837	38.9	32,593	137.6	44,852	8,152	4,033	2,076	+2,535
1925	849	38.6	32,736	149.1	48,809	8,049	1,734	4,747	−2,514
1926	1,006	41.2	41,415	111.6	46,205	8,743	10,957	2,558	+8,844
1927	1,024	43.4	44,422	89.0	39,554	9,183	11,152	1,588	+9,852
1928	962	45.1	43,434	89.9	39,029	10,131	14,137	1,325	+13,272
1929	860	47.2	40,604	99.5	40,384	10,342	10,423	1,124	+9,453
1930	961	46.7	44,923	78.4	35,209	10,864	10,116	1,278	+8,965
1931	964	46.5	44,873	49.6	22,247	10,398	9,890	737	+9,255
1932	873	47.3	41,250	41.9	17,264	12,130	6,398	780	+5,687
1933	792	46.8	37,058	77.8	28,832	10,450	3,629	1,434	+2,195
1934 [5]	781	49.0	38,296	77.5	29,662	------	------	------	------

[1] From 1924–33, prices are average prices for the crop-marketing season.

[2] Year beginning July.

[3] Compiled from Commerce and Navigation of the United States, 1909–17; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34, and official records of the Bureau of Foreign and Domestic Commerce.

[4] The difference between the total exports (domestic exports plus reexports) and total imports. Beginning 1933–34 domestic exports and imports for consumption. See introductory text. Net exports indicated by +; net imports indicated by −.

[5] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text. See 1927 Yearbook, table 102, for data for earlier years.

TABLE 98.—*Rice, rough: Acreage, yield, production, and average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Arkansas	172	147	136	47.1	48.0	51.0	8,379	7,056	6,936	80	76
Louisiana	486	394	394	36.1	40.5	40.5	18,537	15,957	15,957	78	79
Texas	172	145	146	45.3	53.0	53.0	8,913	7,685	7,738	81	79
California	124	106	105	57.5	60.0	73.0	7,823	6,360	7,665	71	74
United States	954	792	781	42.5	46.8	49.0	43,651	37,058	38,296	77.8	77.5

[1] Preliminary.
[2] Dec. 1 price.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 99.—*Rice, in terms of cleaned rice: Production, world and selected countries, 1909–10 to 1934–35*

Crop year	Estimated world, exclusive of China	Production in selected countries [1]								
		India	Japan	Chosen	Taiwan	Indo-China	Java and Madura [2]	Siam [3]	Philippines	United States
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
1909–10	107,000	63,869	16,474	2,343	1,455	--------	5,723	3,734	1,164	572
1910–11	106,000	64,552	14,650	3,269	1,316	--------	5,738	3,466	1,267	681
1911–12	109,000	63,943	16,246	3,634	1,410	--------	6,170	4,533	717	637
1912–13	109,000	63,802	15,778	3,413	1,271	6,614	5,842	4,561	1,512	696
1913–14	113,000	64,555	15,789	3,804	1,610	8,051	6,440	4,994	1,404	715
1914–15	113,000	61,109	17,909	4,439	1,448	9,521	6,339	4,708	1,100	657
1915–16	124,000	73,315	17,569	4,036	1,504	7,921	6,451	4,786	1,289	804
1916–17	129,000	78,521	18,363	4,377	1,461	6,733	6,409	5,011	1,745	1,135
1917–18	132,000	80,559	17,143	4,261	1,519	6,313	7,204	5,133	2,210	965
1918–19	105,000	54,466	17,184	4,765	1,455	6,302	7,272	4,642	2,085	1,072
1919–20	123,000	71,734	19,107	3,974	1,547	6,532	7,936	3,114	2,243	1,186
1920–21	117,000	61,949	19,857	4,639	1,521	6,283	6,761	5,868	2,560	1,435
1921–22	127,000	74,240	17,335	4,500	1,563	7,931	5,964	5,806	2,681	1,091
1922–23	133,000	75,495	19,067	4,717	1,711	7,629	7,280	5,954	2,703	1,157
1923–24	118,000	63,164	17,418	4,767	1,529	7,206	7,284	6,034	2,566	923
1924–25	127,000	69,601	17,960	4,153	1,909	7,801	7,563	6,779	2,818	905
1925–26	127,000	68,851	18,756	4,641	2,024	7,951	7,184	5,752	2,949	909
1926–27	126,000	66,483	17,465	4,807	1,952	8,255	7,732	7,169	3,083	1,150
1927–28	127,000	63,244	19,510	5,435	2,167	8,850	7,942	6,261	3,082	1,234
1928–29	131,000	72,005	18,945	4,245	2,135	7,822	7,679	5,325	3,073	1,208
1929–30	127,000	69,736	18,710	4,304	2,036	8,081	7,453	5,315	3,184	1,128
1930–31	137,000	72,124	21,009	6,026	2,315	8,138	8,053	6,620	3,064	1,248
1931–32	131,000	73,922	17,346	4,987	2,350	7,641	7,732	5,581	2,920	1,246
1932–33	132,000	69,639	18,972	5,135	2,811	7,913	8,187	7,018	--------	1,146
1933–34	134,000	67,991	22,251	5,866	2,628	8,302	8,036	6,869	--------	1,029
1934–35 [4]	--------	--------	15,942	5,201	2,889	--------	--------	--------	--------	1,064

[1] China is an important producing country, but official statistics are not available. The Shanghai office of the Bureau of Agricultural Economics made the following estimates of production in China: 1931, 38,530,000 short tons; 1932, 48,950,000 short tons; 1933, 46,940,000 short tons; and 1934, 38,640,000 short tons.

[2] Estimates of the production of rice on nonirrigated land are not available prior to 1917–18. Estimates for the years 1909–10 to 1916–17 as given here are for the production on irrigated land. Estimates for the years 1917–18 to 1934–35 are for the total production.

[3] Estimated figures obtained by multiplying acreage under rice as classified for revenue purposes up to 1912–13, and acreage as reported by the Department of Land and Agriculture from 1912–13 on by an average yield for the years 1920–21 to 1923–24, for which years official estimates have been published of acreage, yield, and total production.

[4] Preliminary.

Bureau of Agricultural Economics.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934. Estimates of world rice production for the period 1900–01 to 1908–09 appear in 1924 Yearbook, table 138.

TABLE 100.—*Rice: Acreage and production in specified countries, average 1921–22 to 1925–26, annual 1932–33 to 1934–35*

Country	Acreage				Production, in terms of cleaned rice			
	Average, 1921–22 to 1925–26	1932–33	1933–34	1934–35 [1]	Average, 1921–22 to 1925–26	1932–33	1933–34	1934–35 [1]
NORTHERN HEMISPHERE	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
United States	921	873	792	781	997	1,146	1,029	1,064
Mexico	[2] 95	83	81	-------	[2] 77	99	91	-------
Central and South America:								
Salvador	[2] 13	-------	-------	-------	[2] 17	-------	-------	-------
Colombia	[3] 42	-------	-------	-------	[3] 21	-------	-------	-------
British Guiana	45	88	-------	-------	53	114	-------	-------
Dutch Guiana	-------	27	-------	-------	14	34	-------	-------
Europe:								
Spain	115	123	116	-------	376	433	402	-------
Portugal	18	28	-------	-------	22	35	-------	-------
Italy	316	335	316	323	729	894	827	840
Yugoslavia	4	5	-------	-------	3	4	-------	-------
Bulgaria	11	19	17	15	14	22	19	19
French West Africa:								
French Guinea	[3] 2,008	49	-------	-------	[3] 1,106	204	-------	-------
French Senegal	119	124	-------	-------	65	69	-------	-------
Upper Volta	[2] 44	18	-------	-------	[2] 6	-------	-------	-------
Sudan	[4] 79	187	-------	-------	[4] 61	110	-------	-------
Sierra Leone	390	297	-------	-------	311	373	-------	-------
Egypt	192	489	438	395	320	808	727	691
Asia:								
India	81,400	82,518	81,877	-------	70,270	69,639	67,991	-------
Turkey	[3] 66	65	51	74	-------	66	59	78
British North Borneo	62	73	-------	-------	43	-------	-------	-------
French establishments in India	45	47	-------	-------	29	37	-------	-------
Japanese Empire:								
Japan	7,705	7,983	7,778	7,794	18,107	18,972	22,251	15,942
Chosen	3,824	4,027	4,160	3,938	4,556	5,135	5,866	5,201
Taiwan	1,262	1,642	1,668	1,648	1,747	2,811	2,627	2,889
Kwantung	3	2	-------	-------	3	3	-------	-------
French Indo-China	12,005	13,642	-------	-------	7,704	7,913	8,302	-------
Siam	5,964	7,441	7,448	-------	6,065	7,018	6,869	-------
Federated Malay States	186	-------	-------	-------	127	-------	-------	-------
Unfederated Malay States	413	-------	-------	-------	300	-------	-------	-------
Straits Settlements	71	71	-------	-------	75	78	-------	-------
Philippine Islands	4,229	-------	-------	-------	2,744	-------	-------	-------
Ceylon	799	840	-------	-------	471	-------	-------	-------
SOUTHERN HEMISPHERE								
Brazil	[5] 1,029	-------	-------	-------	[5] 1,029	-------	-------	-------
Argentina	16	29	47	-------	19	32	46	-------
Australia	(6)	23	-------	-------	(7)	53	-------	-------
Madagascar	[5] 1,298	1,346	1,404	-------	[5] 1,322	923	-------	-------
Java and Madura	8,014	9,118	9,269	-------	7,055	8,187	8,036	-------
Estimated world total excluding China	-------	-------	-------	-------	126,000	132,000	134,000	-------

[1] Preliminary.
[2] 3-year average.
[3] 2-year average.
[4] 1 year only.
[5] 4-year average.
[6] Less than 500 acres.
[7] Less than 500,000 pounds.

Bureau of Agricultural Economics.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1932–33 the crop harvested in the Northern Hemisphere countries in 1932 is combined with the Southern Hemisphere harvest which begins late in 1932 and ends early in 1933.

China is an important producing country, but official statistics are not available. The Shanghai office of the Bureau of Agricultural Economics made the following estimates of production in China: 1931, 38,530,000 short tons; 1932, 48,950,000 short tons; 1933, 46,940 000 short tons; and 1934, 38,640,000 short tons.

TABLE 101.—*Rice, rough: Receipts at mills in Texas, Louisiana, Arkansas, and Tennessee, by months, 1923–24 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
	1,000 bbl.	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*
1923–24	177	394	1,512	1,911	966	1,076	580	370	80	14	9	6	7,095
1924–25	298	949	2,182	1,905	973	448	197	43	34	11	45	8	7,093
1925–26	457	853	925	1,131	1,672	1,019	477	210	194	119	106	74	7,237
1926–27	188	1,147	1,681	1,253	1,053	818	648	621	372	396	430	147	8,754
1927–28	530	1,167	1,719	1,266	831	853	805	942	620	352	130	17	9,232
1928–29	180	1,197	2,113	1,936	947	621	592	439	429	232	191	126	9,003
1929–30	584	1,388	2,330	1,416	797	870	961	284	146	172	48	21	9,017
1930–31	481	1,005	2,063	1,246	867	1,147	864	601	566	520	323	172	9,855
1931–32	228	1,442	1,810	1,408	632	569	734	813	599	702	328	218	9,483
1932–33	266	862	1,606	1,189	724	687	747	821	1,032	628	257	112	8,931
1933–34	171	1,067	2,095	1,100	426	721	932	496	191	91	183	153	7,626
1934–35	244	836	1,974	910	612								

Bureau of Agricultural Economics. Computed from monthly reports of the Rice Millers' Association and from reports of nonassociation mills. A barrel is equivalent to 162 pounds of rough rice.

TABLE 102.—*Rice: Consumption in the United States and possessions, United States exports and sales, 1918–19 to 1933–34*

Year beginning August	Consumption in the United States and possessions										United States rice	United States exports[1] [2]	Total sales United States rice[1]
	Foreign and United States rice												
	United States		Puerto Rico		Hawaii[1]		Alaska		Total	Foreign rice			
	Total	Per capita	Total	Per capita	Total	Per capita	Total	Per capita					
	1,000 pockets	*Lb.*	*1,000 pockets*	*Lb.*	*1,000 pockets*	*Lb.*	*1,000 pockets*	*Lb.*	*1,000 pockets*	*1,000 pockets*	*1,000 pockets*	*1,000 pockets*	*1,000 pockets*
1918–19	5,829	5.7	1,669	114.8	433	181.2	16		7,947	438	7,509	2,191	9,700
1919–20	3,632	3.4	1,405	98.6	438	175.0	14		5,489	691	4,798	4,745	9,543
1920–21	5,565	5.2	1,648	113.7	521	199.2	8		7,742	476	7,266	4,863	12,129
1921–22	4,890	4.5	1,643	113.3	472	173.0	11	19.8	7,016	198	6,818	4,740	11,558
1922–23	5,848	5.3	1,702	117.4	562	198.0	14		8,126	315	7,811	3,249	11,060
1923–24	5,890	5.3	1,824	123.3	608	205.9	13		8,335	354	7,981	1,564	9,545
1924–25	6,192	5.5	1,778	118.6	659	215.0	12		8,641	435	8,206	744	8,950
1925–26	6,060	5.3	1,860	124.0	658	207.1	13		8,591	909	7,682	285	7,967
1926–27	6,671	5.7	1,833	122.2	696	211.6	11		9,211	464	8,747	2,381	11,128
1927–28	7,370	6.2	1,932	132.9	704	206.9	13		10,019	327	9,692	2,390	12,082
1928–29	7,017	5.8	2,084	141.5	814	231.6	13		9,928	237	9,691	3,196	12,887
1929–30	6,495	5.3	1,941	125.7	832	229.4	13	21.9	9,281	271	9,010	2,250	11,260
1930–31	7,147	5.8	2,077	134.5	892	173.0	11	16.0	10,127	274	9,853	2,217	12,070
1931–32	6,619	5.4	2,012	130.3	913	247.9	10	16.9	9,554	120	9,434	2,246	11,080
1932–33	7,621	6.1	2,249	145.7	879	238.6	11	18.6	10,760	109	10,651	1,275	11,926
1933–34	5,531	4.5	2,150	139.3	867	235.4	10	17.6	8,558	81	8,478	862	9,340

[1] Hawaiian production not included.
[2] Reports of Bureau of Foreign and Domestic Commerce.

Bureau of Agricultural Economics; compiled from annual reports of the Rice Millers' Association, New Orleans. A pocket of milled rice weighs 100 pounds.

TABLE 103.—*Rice, Blue Rose, clean Fancy: Wholesale price per pound, New Orleans, by months, 1924–25 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	6.62	6.38	5.88	6.40	6.56	6.85	6.88	6.75	6.69	7.12	7.38	7.50	6.75
1925–26	7.12	6.62	6.62	7.12	7.19	7.38	7.05	7.00	6.88	7.00	6.88	6.88	6.98
1926–27	6.75	6.00	5.62	5.12	5.00	4.88	4.88	4.81	4.62	4.88	5.05	4.62	5.19
1927–28	4.62	4.62	4.25	3.88	4.00	4.00	3.81	3.75	4.00	4.38	4.50	4.25	4.17
1928–29	4.25	------	4.06	4.12	4.12	4.05	4.00	4.00	4.00	4.00	4.00	4.12	[1] 4.07
1929–30	4.50	4.25	4.25	4.00	3.94	4.25	4.38	4.50	4.38	4.62	4.50	4.50	4.34
1930–31	4.50	4.12	3.88	3.62	3.62	3.50	3.62	3.50	3.50	3.50	3.38	3.38	3.68
1931–32	3.25	3.12	2.88	2.94	2.94	2.84	2.66	2.47	2.28	2.12	2.21	2.00	2.64
1932–33	2.08	2.26	2.14	2.01	1.94	1.89	1.81	1.96	2.09	2.65	2.79	2.89	2.21
1933–34	3.18	3.45	3.75	3.80	3.87	3.90	3.90	3.90	3.90	3.90	3.90	3.88	3.78
1934–35	3.74	3.70	3.68	3.55	3.57	------	------	------	------	------	------	------	------

[1] Average for 11 months.

Bureau of Agricultural Economics. Compiled as follows: 1924–25 to 1930–31 from annual reports of the New Orleans Board of Trade. (Highest quotations represent Fancy grade.) Beginning 1931–32, from rice market reports received weekly by the Bureau.

TABLE 104.—*Rice, including flour, meal, and broken rice: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
British India	4,888	224	5,862	160	4,840	199	4,794	267	4,174	224
Indo-China	3,493	0	2,464	0	2,099	0	2,609	[2] 1	2,682	------
Siam [3]	3,101	1	2,281	0	2,960	0	3,709	0	------	0
Italy	429	3	468	13	331	5	335	6	397	11
United States	252	60	259	28	274	31	257	19	127	29
Spain	115	0	125	0	83	0	87	0	19	0
Egypt	103	59	112	26	63	55	91	39	194	1
Madagascar	41	0	14	0	13	0	11	0	4	8
Brazil	14	36	85	2	199	0	62	0	52	0
Total	12,436	383	11,670	229	10,862	290	11,955	332	7,649	273
PRINCIPAL IMPORTING COUNTRIES										
China	6	2,024	4	2,652	4	1,432	[4] 5	[4] 2,942	14	2,786
British Malaya	623	1,960	490	2,106	412	1,817	425	1,574	371	1,585
Netherlands Indies	51	1,303	27	1,385	38	1,342	54	934	[5] 21	[5] 234
Ceylon	0	1,048	[3] 0	1,063	[3] 0	1,002	[3] 0	1,036	[3] 0	1,010
Japan	14	961	97	397	326	277	67	337	26	314
Germany	325	848	159	550	137	896	105	848	82	678
France	169	532	190	534	94	646	86	802	77	1,225
Cuba	0	461	0	443	0	339	0	312	0	------
Netherlands	224	272	216	242	258	333	189	180	135	238
United Kingdom	16	269	14	254	11	257	8	267	3	226
Philippine Islands	1	147	1	24	2	27	1	29	0	------
Argentina	0	139	0	159	0	116	0	74	0	92
Union of Soviet Socialist Republics	0	126	1	92	2	77	2	108	4	2
Mauritius	0	129	0	114	0	140	0	126	0	------
Czechoslovakia	0	112	0	98	0	113	0	110	0	129
Belgium	4	91	1	105	20	135	21	121	8	124
Total	1,433	10,422	1,200	10,218	1,304	8,949	963	9,800	741	8,643

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Year ended Mar. 31 of following year.
[4] Does not include Manchuria after June 30, 1932.
[5] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted.

Mostly milled rice. Under rice is included paddy, unhulled, rough, milled, polished, broken, and cargo rice, in addition to rice flour and meal. Rice bran is not included. Rough rice, or paddy, where specifically reported has been reduced to terms of milled rice at the ratio of 162 pounds of rough or unhulled to 100 pounds of milled. "Rice, other than whole or cleaned rice", in the returns of the United Kingdom is not considered paddy, since the chief sources of supply indicate that it is practically all hulled rice. Cargo rice, a mixture of hulled and unhulled, is included without being reduced to terms of milled. Broken rice and rice flour and meal, are taken without being reduced to terms of whole milled rice.

TABLE 105.—*Buckwheat: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	11	16	12	19.6	20.0	21.0	200	320	252	65	71
Vermont	2	2	2	21.0	21.0	22.0	42	42	44	64	71
New York	174	139	147	17.2	19.0	19.8	2,859	2,641	2,911	54	56
New Jersey	1	1	2	19.8	15.0	23.0	20	15	46	68	71
Pennsylvania	176	141	138	17.8	19.0	22.5	3,002	2,679	3,105	54	55
North Atlantic	364	299	301	17.6	19.1	21.1	6,123	5,697	6,358	54.7	56.3
Ohio	26	24	22	17.7	15.5	19.5	451	372	429	59	60
Indiana	14	17	19	13.6	13.0	15.0	199	221	285	55	64
Illinois	5	6	18	13.7	12.5	18.5	68	75	333	56	64
Michigan	30	24	15	11.5	11.0	12.5	326	264	188	50	59
Wisconsin	19	17	24	12.0	11.0	11.3	231	187	271	54	64
Minnesota	71	15	14	10.9	8.5	8.0	721	128	112	43	54
Iowa	7	5	14	13.8	13.5	15.0	89	68	210	64	68
Missouri	1	1	1	10.8	11.0	9.0	11	11	9	67	76
North Dakota	19	2	2	10.4	3.0	1.5	213	6	3	51	63
South Dakota	18	1	1	10.3	5.0	5.0	201	5	5	48	72
Nebraska	1	1	[2]	10.1	11.0	-------	9	11	-------	51	-------
North Central	212	113	130	12.4	11.9	14.2	2,520	1,348	1,845	54.4	62.4
Delaware	1	1	1	11.4	10.0	12.0	11	10	12	73	69
Maryland	7	6	5	19.4	18.0	22.0	138	108	110	59	62
Virginia	14	13	14	13.3	13.0	14.0	182	169	196	66	71
West Virginia	22	22	21	17.9	18.5	20.5	407	407	430	66	73
North Carolina	5	4	4	13.4	17.0	16.0	66	68	64	71	78
South Atlantic	49	46	45	16.2	16.6	18.0	804	762	812	65.6	71.3
Kentucky	2	2	2	9.9	8.0	10.0	23	16	20	80	85
Tennessee	2	2	2	13.6	10.5	13.5	27	21	27	78	82
South Central	4	4	4	11.2	9.2	11.8	50	37	47	78.4	83.0
United States	630	462	480	15.8	17.0	18.9	9,496	7,844	9,062	55.8	59.0

[1] Preliminary.
[2] Less than 500 acres.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 106.—*Buckwheat: Acreage price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	101.2	87.6	86.7	87.9	85.7	80.9	81.7	82.5	85.0	90.1	89.9	93.7	87.2
1926–27	90.4	86.5	83.6	83.5	83.6	84.6	86.0	85.1	88.1	98.8	101.0	98.1	87.1
1927–28	92.3	82.9	79.4	81.0	82.0	85.2	90.2	94.8	102.3	109.0	108.0	98.1	86.9
1928–29	92.6	84.5	84.8	88.7	91.2	94.3	94.1	96.4	96.5	94.7	100.4	99.6	89.9
1929–30	96.6	95.8	95.6	95.9	97.3	95.8	94.9	94.8	95.7	100.0	98.3	97.4	96.3
1930–31	97.1	90.7	82.8	80.0	79.1	76.6	77.4	75.2	73.2	72.6	70.0	59.2	78.9
1931–32	52.4	40.2	41.2	41.9	42.1	40.9	41.7	41.4	40.9	42.3	44.2	44.3	42.3
1932–33	43.0	40.3	39.0	38.3	39.2	39.1	39.5	42.7	48.4	53.6	66.3	67.3	43.4
1933–34	68.4	56.7	52.5	51.3	52.1	52.8	54.3	55.5	55.5	60.8	64.7	67.0	55.8
1934–35	68.8	60.4	55.5	56.1	-------	-------	-------	-------	-------	-------	-------	-------	[1] 59.0

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting state price averages for the crop-marketing season. Data for earlier years in 1928 yearbook, table 118. Only monthly prices are comparable.

TABLE 107.—*Buckwheat: Acreage, production, value, and foreign trade, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Weighted average price per bushel received by producers	Farm value, basis weighted average price	Foreign trade, including flour, year beginning July [1]		
						Domestic exports	Imports	Net balance [2]
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919	*743*	*17.1*	*12,690*					
1919	733	17.3	12,707	158.7	20,163	245	160	+85
1920	729	16.7	12,193	125.4	15,288	399	336	+63
1921	640	18.5	11,822	87.9	10,391	485	113	+372
1922	729	16.2	11,776	89.5	10,536	172	286	−114
1923	689	16.8	11,596	95.8	11,104	92	322	−230
1924	*717*	*16.8*	*12,004*					
1924	737	17.0	12,508	107.4	13,433	191	546	−355
1925	742	16.9	12,559	87.2	10,950	79	88	−9
1926	679	16.2	10,976	87.1	9,565	66	86	−20
1927	764	16.8	12,820	86.9	11,137	554	74	+480
1928	679	14.9	10,117	89.9	9,095	229	79	+150
1929	*622*	*13.4*	*8,359*					
1929	627	13.9	8,692	96.3	8,367	22	171	−149
1930	573	12.1	6,960	78.9	5,493	85	426	−341
1931	505	17.6	8,890	42.3	3,764	524	14	+510
1932	454	14.8	6,727	43.4	2,918	33	62	−29
1933	462	17.0	7,844	55.8	4,380	42	104	−62
1934 [3]	480	18.9	9,062	59.0	5,351			

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34 and official records of the Bureau of Foreign and Domestic Commerce. Buckwheat—imports for consumption, 1919–24 and 1930–34—general imports, 1925–29; buckwheat flour imports for consumption 1919–34. Buckwheat flour converted to terms of grain on the basis that 1 barrel of flour is the product of 7 bushels of grain.

[2] The difference between total exports (domestic exports plus reexports) and total imports. Beginning 1930–31 domestic exports and imports for consumption. See introductory text. Net exports indicated by +, net imports indicated by −.

[3] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text. Italic figures are census returns. See 1927 Yearbook, table 111, for data for earlier years.

TABLE 108.—*Sorghums* [1] *cut for grain, forage, and all purposes: Acreage, production, and price per bushel received by producers, United States, 1919–34*

Year	Grain			Forage			All purposes				
	Acreage	Yield per acre	Production	Acreage	Yield per acre	Production	Acreage	Equivalent yield per acre	Equivalent production on total acreage	Price per bushel, Dec. 1 [2]	Farm value, basis Dec. 1 price
	1,000 acres	*Bushels*	*1,000 bushels*	*1,000 acres*	*Short tons*	*1,000 short tons*	*1,000 acres*	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*
1919	*3,726*	*19.8*	*73,654*								
1919	3,630	20.4	73,952	2,665	1.67	4,438	6,295	19.4	122,330	128.0	156,531
1920	4,027	21.8	87,734	2,513	1.78	4,479	6,540	20.9	136,367	94.2	128,504
1921	3,700	19.2	70,950	2,424	1.57	3,794	6,124	18.3	112,273	39.2	44,062
1922	3,369	14.7	49,523	2,127	1.37	2,917	5,496	13.7	75,530	87.2	65,898
1923	4,204	14.7	61,648	2,150	1.40	3,015	6,354	13.9	88,466	93.5	82,674
1924	*3,526*	*16.6*	*58,700*								
1924	3,506	16.7	58,474	2,184	1.40	3,050	5,690	15.4	87,870	85.5	75,095
1925	3,887	14.2	55,244	2,385	1.29	3,076	6,272	13.1	82,224	75.1	61,733
1926	4,211	16.8	70,869	2,229	1.32	2,950	6,440	15.8	101,502	54.2	55,007
1927	4,270	17.0	72,738	2,452	1.47	3,613	6,722	16.0	107,261	77.1	82,666
1928	4,121	17.8	73,427	2,406	1.48	3,566	6,527	17.1	111,690	65.7	73,418
1929 [3]	*3,522*	*13.9*	*49,109*								
1929	3,467	14.2	49,399	2,664	1.37	3,654	6,131	13.2	81,041	66.8	54,173
1930	3,449	10.8	37,203	3,137	1.17	3,678	6,586	9.8	64,416	56.2	36,220
1931	4,509	15.6	70,116	2,657	1.30	3,446	7,166	14.7	105,369	25.6	27,026
1932	4,548	14.4	65,339	3,316	1.35	4,471	7,864	13.5	106,306	19.1	20,349
1933	4,883	11.8	57,480	3,266	1.24	4,044	8,149	10.8	88,082	51.0	44,911
1934 [4]	2,998	6.2	18,558	4,571	.77	3,527	7,569	4.6	34,542	82.3	28,415

[1] Kafirs, milo, feterita, durra, etc.

[2] From 1919 to 1924, Nov. 15 price; 1925 and 1926, Dec. 1 price; 1927–33, average price for the crop-marketing season; 1934, Dec. 1 price.

[3] Includes sorgo seed.

[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised 1919–28. See introductory text. Italic figures are census returns.

TABLE 109.—*Sorghums:*[1] *Acreage, yield, production, and average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage for all purposes			Equivalent yield per acre			Production for all purposes [2]			Price for crop of—	
	Average, 1927–31	1933	1934 [3]	Average, 1922–31	1933	1934 [3]	Average, 1927–31	1933	1934 [3]	1933	1934 [4]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Missouri	76	88	119	14.6	16.0	7.0	1,182	1,408	833	56	91
Nebraska	19	37	74	15.4	15.5	2.0	331	574	148	61	129
Kansas	1,130	1,607	1,205	15.0	10.0	3.0	17,578	16,070	3,615	38	67
Oklahoma	1,377	1,400	1,232	11.0	8.5	6.0	14,386	11,900	7,392	47	80
Texas	3,428	4,228	4,482	15.0	11.0	4.0	50,732	46,508	17,928	58	85
Colorado	202	284	102	11.2	7.5	3.0	2,301	2,130	306	34	104
New Mexico	287	372	242	16.8	14.0	7.0	4,535	5,208	1,694	42	90
Arizona	26	35	35	25.3	30.0	26.0	709	1,050	910	42	78
California	81	98	78	27.5	33.0	22.0	2,203	3,234	1,716	54	78
United States	6,626	8,149	7,569	14.3	10.8	4.6	93,955	88,082	34,542	51.0	82.3

[1] Kafirs, milo, feterita, durra, etc.
[2] Includes grain equivalent on forage acreage.
[3] Preliminary.
[4] Dec. 1 price.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 110.—*Grain sorghums:*[1] *Receipts at Kansas City, 1924–25 to 1933–34*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*
1924–25	647	1,152	683	636	497	320	301	440	221	183	68	24	5,172
1925–26	279	629	416	290	261	211	290	469	162	94	136	97	3,334
1926–27	397	493	626	442	293	216	192	241	249	285	79	112	3,625
1927–28	410	905	696	519	592	392	323	343	224	87	51	236	4,778
1928–29	449	675	856	525	705	426	394	668	207	196	97	182	5,380
1929–30	294	626	296	447	327	296	202	179	68	42	52	34	2,863
1930–31	299	239	162	145	130	139	109	204	41	38	31	134	1,671
1931–32	257	76	168	181	115	143	119	70	70	77	69	148	1,493
1932–33	105	127	133	78	88	154	116	90	119	34	60	43	1,147
1933–34	217	193											

[1] Includes kafir, milo, and feterita. Receipts for 1909–10 to 1923–24 available in 1931 Yearbook, table 131.

Bureau of Agricultural Economics; compiled from annual statistical reports of Kansas City Board of Trade.

TABLE 111.—*Grain sorghums: Receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1925–26 to 1933–34*

Year beginning July	Grade					Total
	No. 1	No. 2	No. 3	No. 4	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1925–26	312	4,158	5,796	1,639	495	12,400
1926–27	878	7,180	6,674	1,792	691	17,215
1927–28	1,175	9,885	8,125	3,143	965	23,293
1928–29	866	7,247	5,400	6,794	3,969	24,276
1929–30	557	5,495	4,043	3,664	1,722	15,481
1930–31	224	2,368	2,432	1,240	390	6,654
1931–32	1,256	11,556	3,197	944	597	17,550
1932–33	323	2,501	1,183	757	341	5,105
1933–34	409	2,614	1,081	427	465	4,996

Bureau of Agricultural Economics.

TABLE 112.—*Kafir, No. 2 White: Weighted average price per bushel of reported cash sales, Kansas City, 1925–26 to 1934–35*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	82	77	77	72	68	70	69	70	79	76	74	71	73
1926–27	64	64	63	63	65	69	79	102	110	97	------	70	------
1927–28	69	71	74	81	88	90	92	91	92	83	89	83	82
1928–29	78	74	75	80	71	71	71	74	89	90	105	81	77
1929–30	77	73	76	72	77	91	91	94	92	101	98	------	------
1930–31	63	61	58	53	53	59	58	57	51	42	42	36	55
1931–32	40	33	34	31	32	32	31	------	32	36	34	25	------
1932–33	28	25	25	24	27	39	43	52	68	67	64	52	44
1933–34	44	41	44	42	42	46	52	53	76	90	------	------	------
1934–35	------	116	------	------	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics; computed by weighting selling price by number of car lots sold as reported in Kansas City Grain Market Review, formerly Daily Price Current.

Quoted per 100 pounds; converted to bushels of 56 pounds. Data for 1909–10 to 1924–25 available in 1930 Yearbook, table 123.

TABLE 113.—*Cotton: Acreage, production, value, and foreign trade, United States, 1866–1934*

Year	Acreage in cultivation July 1 [1]	Acreage harvested	Average yield per acre	Production [2]	Price per pound received by producers Dec. 1 [3]	Farm value, basis Dec. 1 price	Market price per pound, year beginning August [4]		Foreign trade, year beginning August		
							New York	New Orleans	Domestic exports [5 6 7]	Imports [6 8]	Net exports [5 6 7 9]
	1,000 acres	*1,000 acres*	*Lb.*	*1,000 bales*	*Cents*	*1,000 dollars*	*Cents*	*Cents*	*1,000 bales*	*1,000 bales*	*1,000 bales*
1866		7,666	121.5	2,097			32.16		[10] 1,323	2	1,324
1867		7,864	142.6	2,520			24.54		[11] 1,511	2	1,510
1868		6,973	150.7	2,366			28.64		1,288	6	1,284
1869				*3,012*							
1869		7,751	155.4	3,011			25.31		1,980	4	1,977
1870		9,238	208.2	4,352			17.04		2,894	3	2,893
1871		8,285	159.0	2,974			21.88		1,851	7	1,844
1872		9,580	182.3	3,933			20.22		2,437	11	2,426
1873		10,998	168.3	4,168			17.29		2,706	5	2,702
1874		10,753	157.0	3,836			15.67		2,523	5	2,520
1875		11,348	181.2	4,631			13.10		3,003	5	2,999
1876		11,747	167.6	4,474			11.89		2,869	6	2,864
1877		12,606	170.4	4,773			11.17		3,198	7	3,194
1878		13,539	167.5	5,074			10.82		3,265	6	3,259
1879		*14,480*		*5,755*							
1879		14,474	180.5	5,756			12.13		3,711	7	3,705
1880		15,921	190.9	6,606			11.36		4,409	9	4,403
1881		16,483	149.0	5,456			12.09		3,430	9	3,426
1882		15,638	208.9	6,949	9.12	311,644	10.81		4,582	9	4,577
1883		16,295	162.0	5,713	9.13	252,501	10.87		3,745	15	3,734
1884		16,849	155.1	5,682	9.19	251,581	10.74		3,740	10	3,733
1885		17,922	169.9	6,576	8.39	267,481	9.47		4,193	11	4,185
1886		18,370	164.3	6,505	8.06	254,733	9.91		4,274	9	4,266
1887		18,793	175.1	7,047	8.55	294,527	10.15		4,557	11	4,547
1888		19,520	169.5	6,938	8.50	294,183	10.44		4,720	17	4,704
1889		*20,175*		*7,473*							
1889		20,191	176.9	7,473	8.55	319,334	11.27	10.69	4,934	19	4,915
1890		20,937	195.5	8,653	8.59	368,108	9.48	9.08	5,859	45	5,815
1891		21,503	198.7	9,035	7.24	323,943	7.68	7.28	5,888	61	5,827
1892		18,869	168.7	6,700	8.34	277,556	8.45	8.15	4,456	90	4,363
1893		20,256	175.3	7,493	7.00	260,096	7.75	7.30	5,309	58	5,258
1894		21,886	219.0	9,901	4.59	230,071	6.38	5.86	7,010	104	6,908
1895		19,839	172.2	7,162	7.62	272,378	8.10	7.68	4,710	115	4,595
1896		23,230	175.2	8,533	6.66	283,463	7.71	7.28	6,172	119	6,057

[1] For 1909–26, inclusive, the acreage figures relate to June 25 instead of July 1.

[2] Department figures are in running bales for all years prior to 1899, and in 500-pound gross-weight bales 1899–1934. Agricultural census figures for all periods are in running bales.

[3] Calculations of average price and farm value not completed. Beginning with 1908 prices are weighted average prices for crop-marketing season.

[4] New York prices 1866–67 to August 1871, Chronological and Statistical History of Cotton, by E. J. Donnell; 1871–72 to August 1900, Commercial and Financial Chronicle, average of daily quotations; beginning 1900 from reports of the New York Cotton Exchange except Sept. 23–Nov. 16, 1914, when the exchange was closed (prices for this period from the Commercial and Financial Chronicle). New Orleans prices were from same sources prior to Aug. 16, 1915, since which date from reports of the New Orleans Cotton Exchange direct to this bureau. These central market prices are for Middling grade, ⅞-inch staple, only.

[5] Excluding linters from 1914 to 1934.

[6] Compiled from Commerce and Navigation of the United States, 1866–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June and July 1919–34, and January 1927–34.

[7] Bales of 509 pounds gross weight.

[8] Bales of 478 pounds net, which are equivalent to bales of 500 pounds gross weight.

[9] Total exports (domestic plus foreign) minus imports.

[10] Year beginning July.

[11] 13 months, July–July.

TABLE 113.—*Cotton Acreage, production, value, and foreign trade, United States, 1866–1934*—Continued

Year	Acreage in cultivation July 1 [1]	Acreage harvested	Average yield per acre	Production [2]	Price per pound received by producers Dec. 1 [3]	Farm value, basis Dec. 1 price	Market price per pound, year beginning August [4]		Foreign trade, year beginning August		
							New York	New Orleans	Domestic exports [5 6 7]	Imports [8 8]	Net exports [5 6 7 9]
	1,000 acres	*1,000 acres*	*Lb.*	*1,000 bales*	*Cents*	*1,000 dollars*	*Cents*	*Cents*	*1,000 bales*	*1,000 bales*	*1,000 bales*
1897	25,131	209.0	10,899	6.68	367,065	6.40	5.84	7,757	102	7,656
1898	24,715	223.1	11,278	5.73	330,282	6.00	5.46	7,662	105	7,557
1899	*24,276*		*9,535*							
1899	24,163	185.0	9,346	6.98	326,208	8.36	8.03	6,228	140	6,091
1900	24,886	194.7	10,124	9.15	463,295	9.38		6,800	109	6,692
1901	27,050	168.2	9,508	7.03	334,075	8.73	8.40	6,949	202	6,750
1902	27,561	184.7	10,630	7.60	403,717	9.96	9.64	7,084	151	6,936
1903	27,762	169.9	9,851	10.49	516,764	12.84	12.49	6,207	103	6,107
1904	30,077	213.7	13,438	8.98	603,433	9.09	8.70	8,908	129	8,781
1905	27,753	182.3	10,576	10.78	569,788	11.30	10.97	7,118	144	6,980
1906	31,404	202.3	13,274	9.58	635,537	11.24	10.92	8,943	227	8,741
1907	30,729	172.9	11,106	10.36	575,207	11.53	11.41	7,666	153	7,518
1908	31,091	203.8	13,241	9.01	596,608	10.23	9.80	8,955	181	8,778
1909	*32,044*		*10,649*							
1909	31,744	30,555	156.5	10,005	13.60	680,246	14.66	14.33	6,353	170	6,194
1910	32,480	31,508	176.2	11,609	13.95	809,724	14.87	14.65	8,027	245	7,787
1911	35,634	34,916	215.0	15,694	9.60	752,925	10.85	10.85	11,116	233	10,885
1912	33,199	32,557	201.4	13,703	11.49	787,232	12.29	12.20	9,146	249	8,899
1913	35,721	35,206	192.3	14,153	12.50	884,926	13.21	13.12	9,508	273	9,251
1914	36,197	35,615	216.4	16,112	7.36	592,830	[12] 8.89		8,702	400	8,322
1915	30,544	29,951	178.5	11,172	11.22	626,774	11.98	11.68	6,113	458	5,673
1916	33,977	33,071	165.6	11,448	17.34	992,304	19.28	18.84	5,525	311	5,219
1917	33,064	32,245	167.4	11,284	27.12	1,529,862	29.68	28.96	4,402	231	4,175
1918	36,123	35,038	164.1	12,018	28.93	1,738,071	31.01	29.87	5,774	211	5,568
1919		*33,740*		*11,376*							
1919	34,573	32,906	165.9	11,411	35.41	2,020,398	38.29	38.21	6,707	732	5,993
1920	35,872	34,408	186.7	13,429	15.92	1,069,257	17.89	16.55	5,973	237	5,753
1921	29,716	28,678	132.5	7,945	17.01	675,773	18.92	17.92	6,348	380	5,980
1922	32,176	31,361	148.8	9,755	22.87	1,115,578	26.24	25.94	5,007	492	4,536
1923	37,000	35,550	136.4	10,140	28.69	1,454,320	31.11	30.33	5,815	306	5,530
1924		*39,204*		*13,683*							
1924	40,692	39,503	165.0	13,630	22.91	1,561,022	24.74	24.21	8,240	328	7,923
1925	45,972	44,390	173.5	16,105	19.59	1,577,091	20.53	19.71	8,267	340	7,939
1926	45,847	44,616	192.8	17,978	12.47	1,121,185	15.15	14.74	11,299	419	10,900
1927	39,479	38,349	161.7	12,956	20.19	1,308,088	20.42	19.98	7,857	354	7,522
1928	43,735	42,432	163.3	14,477	17.99	1,302,036	19.73	18.98	8,419	479	7,957
1929		*43,227*		*14,674*							
1929	44,458	43,242	164.1	14,825	16.79	1,244,846	16.60	16.16	7,035	396	6,650
1930	43,339	42,454	157.0	13,932	9.46	659,041	10.38	10.08	7,133	112	7,029
1931	39,109	38,705	211.5	17,096	5.66	483,627	6.34	6.20	9,193	138	9,081
1932	36,542	35,939	173.3	13,002	6.52	424,006	7.37	7.26	8,895	136	8,766
1933	40,852	[13] 29,978	208.5	13,047	9.72	634,396	11.09	10.92	7,964	[14] 156	7,815
1934 [15]	28,412	27,515	169.2	9,731	12.60	612,802					

See footnotes 1 to 9 on page 425.

[12] Average for 9 months only. Exchange closed Aug. 1–Nov. 17, on account of war.

[13] Area in cultivation July 1 less removal of acreage reported by the Agricultural Adjustment Administration, less abandonment on area not under contract.

[14] Includes imports for consumption, January–June 1934, reexports not considered.

[15] Preliminary.

Bureau of Agricultural Economics.

Agricultural census figures in italics; other acreage, yield, and production figures are estimates of the Crop Reporting Board. Production figures conform with census annual ginning enumerations, with allowance for cross State ginnings, State figures rounded to thousands and added for United States total. Since the 1933 Yearbook was published, acreage and yield for all years have been revised to the level of the 1930 census, and cotton grown in Baja California, Mexico, ginned in California, from 1913 to 1924 has been excluded.

TABLE 114.—*Cotton: Acreage, yield, production of lint in 500-pound gross-weight bales, and weighted average price per pound received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production [1]			Price for crop of—	
	Average, 1928–32	1933	1934 [2]	Average, 1923–32	1933	1934 [2]	Average, 1928–32	1933	1934 [2]	1933	1934 [3]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Lb.*	*Lb.*	*Lb.*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*Cents*	*Cents*
Missouri	374	356	320	256	340	366	229	253	245	9.11	12.3
Virginia	79	65	59	270	275	316	45	37	39	9.74	12.4
North Carolina	1,432	1,090	970	269	300	320	752	684	650	10.52	12.7
South Carolina	1,879	1,379	1,282	208	255	259	856	735	695	10.35	12.8
Georgia	3,166	2,147	2,147	176	246	221	1,241	1,105	995	9.70	12.6
Florida	124	94	94	124	141	142	35	28	28	9.24	12.3
Tennessee	1,065	884	769	196	240	256	479	443	412	9.62	12.2
Alabama	3,373	2,378	2,164	172	195	213	1,255	969	965	10.20	12.4
Mississippi	3,977	2,859	2,602	191	194	211	1,559	1,159	1,145	10.05	12.8
Arkansas	3,382	2,583	2,247	188	193	186	1,351	1,041	875	9.90	12.5
Louisiana	1,847	1,295	1,191	192	176	196	745	477	488	9.67	12.7
Oklahoma	3,707	2,915	2,740	149	208	57	1,109	1,266	325	9.12	11.8
Texas	15,598	11,488	10,454	139	185	110	4,580	4,428	2,395	9.42	12.6
New Mexico	122	96	93	318	468	474	90	94	92	9.83	12.9
Arizona	186	118	133	322	391	396	128	96	110	11.80	14.1
California	222	208	223	386	500	548	200	217	255	10.42	12.9
All other	20	23	27	227	311	301	11	15	17	9.52	12.2
United States	40,554	29,978	27,515	169.9	208.5	169.2	14,666	13,047	9,731	9.72	12.6
Baja California (old Mexico)	101	54	59	242	159	154	48	18	19	-------	-------

[1] Compiled from reports of the Bureau of the Census. Slight differences from census figures on ginnings are due to ginnings in one State of cotton grown in another.
[2] Preliminary estimate of the Department of Agriculture.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 115.—*Cotton: Acreage and production in specified countries, average 1925–26 to 1929–30, annual 1932–33 to 1934–35*

Country	Acreage				Production			
	Average, 1925–26 to 1929–30	1932–33	1933–34	1934–35 [1]	Average, 1925–26 to 1929–30	1932–33	1933–34	1934–35 [1]
	Acres	*Acres*	*Acres*	*Acres*	*Bales* [2]	*Bales* [2]	*Bales* [2]	*Bales* [2]
United States	42,606,000	35,939,000	29,978,000	27,515,000	15,268,000	13,001,000	13,047,000	9,731,000
Mexico	471,632	192,377	424,288	417,903	252,805	101,537	260,426	208,625
Venezuela	-------	-------	-------	-------	[3] 33,095	-------	-------	-------
Colombia	49,273	-------	-------	-------	14,305	9,916	-------	-------
Peru	304,302	304,000	-------	-------	244,627	242,000	276,000	-------
Ecuador	-------	-------	-------	-------	5,776	3,887	5,188	7,782
Brazil	1,306,000	1,810,000	2,519,000	-------	547,364	448,000	969,000	-------
Bolivia	[4] 5,601	-------	-------	-------	[3] 2,139	-------	-------	-------
Paraguay	[5] 23,691	-------	-------	-------	[3] 12,328	-------	-------	-------
Argentina	241,073	342,000	480,000	-------	115,370	150,000	-------	-------
Guatemala	697	-------	-------	-------	397	-------	-------	-------
Haiti	130,269	250,065	-------	-------	[6] 22,324	-------	-------	-------
Dominican Republic	-------	-------	-------	-------	[3] 351	-------	-------	-------
Puerto Rico	10,020	8,401	-------	-------	2,030	724	-------	-------
Salvador	-------	-------	-------	-------	[3 6] 774	-------	-------	-------
British West Indies	16,807	-------	-------	-------	4,288	-------	-------	-------
Italy	[3] 8,772	3,000	4,000	-------	[7] 3,300	1,121	1,000	-------

[1] Preliminary.
[2] Bales of 478 pounds net.
[3] Average for 4 years.
[4] Average for 2 years.
[5] Average for 3 years.
[6] Exports.
[7] Estimate for 1 year.

TABLE 115.—*Cotton: Acreage and production in specified countries, average 1925–26 to 1929–30, annual 1932–33 to 1934–35*—Continued

Country	Acreage				Production			
	Average, 1925–26 to 1929–30	1932–33	1933–34	1934–35 [1]	Average, 1925–26 to 1929–30	1932–33	1933–34	1934–35 [1]
	Acres	*Acres*	*Acres*	*Acres*	*Bales* [2]	*Bales* [2]	*Bales* [2]	*Bales* [2]
Yugoslavia	1,763	2,251			392	542		
Greece	39,819	50,000	71,000	109,000	15,016	22,000	32,000	50,000
Bulgaria	10,867	20,000	49,000	82,000	3,046	6,005	18,000	29,100
Malta	993	67			427	34		
Spain	13,643	20,000	19,000		2,974	5,000	9,000	
Algeria	15,138				6,176			
Morocco (French)	1,480				448			
French West Africa:								
Dahomey					6,344	3,000	3,200	
Ivory Coast	[3] 149,376				[4] 7,646	6,964		
French Guinea	[3] 18,841				[3] 2,406			
Senegal	47,690				1,695			
French Sudan	[3] 158,267				7,947			
Upper Volta					5,776			
French Togo					7,732			
Nigeria					[4] 28,846	18,600	18,600	
French Equatorial Africa	[4] 7,797	124,000			[3] 822	13,000	20,800	
Egypt	1,828,000	1,135,000	1,873,000	1,798,000	1,587,000	1,028,000	1,777,000	1,617,000
Anglo-Egyptian Sudan	269,200	325,000	333,000	352,000	125,547	121,000	135,000	
Italian Somaliland	15,862				4,005			
Niger Territory	[3] 18,162				1,764			
Eritrea	[3] 6,487	5,869	12,000		1,624	784		
Gold Coast					[3] 209			
Belgian Congo	[3] 24,850				25,587			
Kenya					1,299	2,542	3,347	
Uganda	615,441	1,071,521	1,091,000	1,181,000	131,257	247,000	218,000	
Angola					[4] 3,022			
Tanganyika					20,537	15,096	23,841	
Nyasaland	[3] 23,805	33,840			4,360	4,293		
Northern Rhodesia [5]	2,566				126			
Southern Rhodesia	16,706				1,508			
Mozambique					9,094			
Union of South Africa	64,491				[9] 11,302	1,500	2,186	
Cyprus	11,342	6,247			2,532	937		
Ceylon	1,631				192			
Turkey (Asiatic)	334,230	358,000	400,000	491,000	92,928	28,000	23,098	78,406
Syria and Lebanon	54,977	19,000			9,886	4,000	4,000	
Union of Soviet Socialist Republics	1,991,000	5,139,000	4,858,000	4,843,000	1,012,000	1,778,000	1,889,000	
Iraq	[7] 15,000				2,977	342		
Iran					95,160	[10] 100,000	[10] 100,000	
India	26,192,000	22,483,000	23,739,000		4,724,000	3,896,000	4,159,000	
China [11]	4,480,000	5,630,000	6,142,000	6,747,000	2,009,000	2,261,000	2,726,000	2,928,000
Japan	2,857				1,090			
Chosen	495,232	393,000	433,000	480,000	137,593	136,000	147,000	
Manchuria			141,000	198,000			80,000	100,000
French Indo-China	[4] 42,960				[4] 7,120	6,685		
Netherlands Indies	21,708	25,187			4,708	2,958		
Siam	8,951				3,244			
Australia	22,895				7,311	12,232	18,533	
New Hebrides [6]					2,505	868		
Estimated world total, including China	83,080,000	76,700,000	74,400,000		26,720,000	23,700,000	26,100,000	23,000,000

[1] Preliminary.
[2] Bales of 478 pounds net.
[3] Average for 4 years.
[4] Average for 2 years.
[5] Average for 3 years.
[6] Exports.
[7] Production has been discontinued with the exception of a few experimental plots under Government supervision.
[9] Includes Swaziland.
[10] From an unofficial source.
[11] From reports of the Chinese Cotton Statistics Association. Figures represent the crop in the most important cotton Provinces where the commercial crop is grown.

Bureau of Agricultural Economics; from official sources, International Institute of Agriculture and estimates of the Bureau of Agricultural Economics except as noted.
Data for crop year as given at the head of table are for crops harvested between Aug. 1 and July 31.

TABLE 116.—*Cotton: Production, world and selected countries, 1909–10 to 1934–35*

Crop Year	Estimated world total excluding China	Estimated world total including China	Production in selected countries						Estimated world total commercial crop [2]
			United States	India	Egypt	China [1]	Brazil	Russia	
	1,000 bales [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [4]
1909–10	16,900	----------	10,005	3,998	1,036	--------	324	--------	16,241
1910–11	18,400	----------	11,609	3,254	1,555	--------	357	--------	18,027
1911–12	21,900	----------	15,694	2,730	1,530	--------	360	--------	21,269
1912–13	21,100	----------	13,703	3,702	1,554	--------	418	--------	20,976
1913–14	22,200	----------	14,153	4,239	1,588	--------	477	--------	21,618
1914–15	24,200	----------	16,112	4,359	1,337	--------	465	1,270	23,768
1915–16	17,800	----------	11,172	3,128	989	--------	339	1,512	17,649
1916–17	18,366	19,900	11,448	3,759	1,048	1,534	337	1,199	18,092
1917–18	17,608	19,700	11,284	3,393	1,304	2,092	414	634	18,140
1918–19	17,841	20,900	12,018	3,328	999	3,059	406	161	18,755
1919–20	18,782	21,300	11,411	4,853	1,155	2,518	461	81	20,220
1920–21	19,217	21,100	13,429	3,013	1,251	1,883	476	58	19,665
1921–22	13,886	15,400	7,945	3,752	902	1,514	504	43	15,334
1922–23	16,982	19,300	9,755	4,245	1,391	2,318	553	55	17,926
1923–24	17,707	19,700	10,140	4,320	1,353	1,993	576	197	19,036
1924–25	22,822	25,000	13,630	5,095	1,507	2,178	793	453	23,836
1925–26	25,798	27,900	16,105	5,201	1,650	2,102	602	782	26,678
1926–27	26,658	28,400	17,978	4,205	1,586	1,742	512	830	27,819
1927–28	22,125	24,000	12,956	4,990	1,261	1,875	509	1,096	23,426
1928–29	24,334	26,800	14,477	4,838	1,672	2,466	446	1,174	25,628
1929–30	24,384	26,500	14,825	4,387	1,768	2,116	583	1,279	26,653
1930–31	23,550	25,800	13,932	4,373	1,715	2,250	471	1,589	25,304
1931–32	25,715	27,500	17,095	3,368	1,323	1,785	575	1,843	26,329
1932–33	21,439	23,700	13,001	3,896	1,028	2,261	448	1,778	23,634
1933–34	23,374	26,100	13,047	4,159	1,777	2,726	969	1,889	25,451
1934–35 [5]	20,072	23,000	9,731	--------	1,617	2,928	--------	--------	----------

[1] From reports of the Chinese Cotton Statistics Association. Figures represent the crop in the most important cotton-producing Provinces where the commercial crop is grown. Most of the cotton produced in other Provinces is used for home hand-loom consumption.

[2] Figures as reported by the U. S. Bureau of the Census, including the cotton destined to enter commercial channels for factory purposes. Estimates of the commercial crop in China are included.

[3] Bales of 478 pounds net.

[4] American in running bales and foreign in bales of 478 pounds net, beginning with 1922–23. From 1909–10 to 1916–17, inclusive, bales of 500 pounds net, and from 1917–18 to 1921–22 in bales of 478 pounds net.

[5] Preliminary.

Bureau of Agricultural Economics; from official sources, International Institute of Agriculture, and estimates of the Bureau of Agricultural Economics, except as noted.

The crop year is from Aug. 1 to July 31. For the United States prior to 1914 the figures apply to the year beginning Sept. 1.

TABLE 117.—*Cotton: Monthly marketings by farmers, 1924–25 to 1933–34* [1]

Year	Percentages of sales during—												
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Year
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
1924–25	3.3	15.2	25.2	22.3	14.5	7.0	5.3	3.4	1.6	1.0	.6	.6	100.0
1925–26	6.5	19.3	23.1	17.6	12.0	6.5	4.2	3.1	2.3	1.7	2.1	1.6	100.0
1926–27	2.7	15.2	22.0	19.5	12.5	6.3	5.8	5.0	3.8	3.1	2.5	1.6	100.0
1927–28	6.6	20.0	23.8	17.3	9.7	4.2	4.0	4.2	3.1	2.7	2.3	2.1	100.0
1928–29	4.6	15.6	24.8	20.8	12.8	5.4	4.0	4.8	1.8	1.6	1.9	1.9	100.0
1929–30	5.7	18.2	28.3	20.6	11.8	4.2	2.6	2.3	1.4	1.1	1.6	2.2	100.0
1930–31	7.7	19.0	25.6	20.3	11.7	3.9	2.8	2.4	1.8	1.6	1.8	1.4	100.0
1931–32	2.9	13.4	23.9	20.5	13.6	6.3	5.9	5.2	2.6	1.7	1.8	2.2	100.0
1932–33	4.1	14.3	23.0	19.9	10.9	4.0	3.3	3.4	4.9	5.7	3.9	2.6	100.0
1933–34	6.5	17.4	22.6	20.2	10.7	3.5	3.5	4.3	2.6	1.6	3.6	3.5	100.0

[1] As reported by about 7,500 cotton growers, supplemented by records of State weighers, cooperative associations, and cotton dealers.

Bureau of Agricultural Economics. Data for earlier years in 1928 Yearbook, table 259.

TABLE 118.—*Cotton: Supply and distribution, United States, 1913–14 to 1933–34*

Year beginning August	Supply					Distribution					
	Carry-over from previous season		Production [1]	Imports	Total supply	Consumption		Exports	Stocks on hand at end of year		Total distribution [2]
	Foreign	Total				Foreign	Total		Foreign	Total	
	1,000 bales	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
1913–14	83	1,511	13,983	261	15,755	194	5,577	9,142	73	1,366	16,085
1914–15	73	1,366	15,906	382	17,654	222	5,597	8,323	145	3,936	17,856
1915–16	145	3,936	11,068	438	15,442	317	6,398	5,896	212	3,140	15,434
1916–17	212	2,140	11,364	292	14,796	318	6,789	5,300	143	2,720	14,809
1917–18	143	2,720	11,248	221	14,189	184	6,566	4,288	111	3,450	14,304
1918–19	111	3,450	11,906	202	15,558	176	5,766	5,592	83	4,287	15,645
1919–20	83	4,287	11,326	700	16,313	417	6,420	6,545	284	3,563	16,528
1920–21	284	3,563	13,271	226	17,060	216	4,893	5,745	174	6,534	17,172
1921–22	174	6,534	7,978	363	14,875	297	5,910	6,184	167	2,832	14,926
1922–23	167	2,832	9,729	470	13,031	344	6,666	4,823	196	2,325	13,814
1923–24	196	2,325	10,171	292	12,788	328	5,681	5,656	116	1,556	12,893
1924–25	116	1,556	13,639	313	15,508	276	6,193	8,005	106	1,610	15,808
1925–26	106	1,610	16,123	326	18,059	280	6,456	8,051	129	3,543	18,050
1926–27	129	3,543	17,755	401	21,699	309	7,190	10,927	99	3,762	21,879
1927–28	99	3,762	12,783	338	16,883	299	6,834	7,540	111	2,536	16,910
1928–29	111	2,536	14,297	458	17,291	313	7,091	8,044	182	2,312	17,447
1929–30	182	2,312	14,548	378	17,238	302	6,106	6,690	209	4,530	17,326
1930–31	209	4,530	13,756	108	18,394	179	5,263	6,760	107	6,370	18,393
1931–32	107	6,370	16,629	132	23,131	122	4,866	8,708	97	9,678	23,252
1932–33	97	9,678	12,710	130	22,518	133	6,137	8,419	84	8,165	22,721
1933–34	84	8,165	12,664	148	20,977	148	5,700	7,534	95	7,744	20,978

[1] Production is expressed in running bales in this table and therefore the figures are not the same as those shown in tables where bales of 500 pounds gross weight are used. Consumption and carry-over statistics for American cotton are available only in running bales, and therefore production and exports are shown in running bales.

[2] Total distribution usually is greater than total supply due principally to the inclusion, in all distribution items, of the "city crop", which consists of rebaled samples and pickings from cotton damaged by fire and weather.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census.
Quantities are in running bales, round bales counted as half bales and foreign in 500-pound bales.

TABLE 119.—*Cotton: Consumption by mills, United States, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
	1,000 bales	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
1925–26	451	483	544	544	576	582	565	636	578	516	519	462	6,456
1926–27	500	571	568	584	603	603	590	693	618	630	660	570	7,190
1927–28	634	628	614	627	539	586	573	581	525	577	510	440	6,834
1928–29	526	492	616	611	533	668	595	632	632	669	570	547	7,091
1929–30	559	546	640	541	453	576	494	508	532	473	405	379	6,106
1930–31	353	393	443	415	406	450	433	491	509	465	454	451	5,263
1931–32	425	464	461	425	415	435	451	489	367	332	323	279	4,866
1932–33	404	493	502	503	440	470	441	496	470	620	698	600	6,137
1933–34	589	499	504	475	348	508	478	544	513	519	363	360	5,700
1934–35 [1]	421	296	520	477	414	547	478	481	463				

[1] Preliminary.

Bureau of Agricultural Economics: compiled from reports of the Bureau of the Census. Data for earlier years in 1928 Yearbook, table 264.
Quantities are in running bales, round counted as half bales and foreign in 500-pound bales.

TABLE 120.—*Cotton: Grade, staple length, and tenderability of crop and carry-over, United States, 1930–31 to 1933–34*

Item	Crop				Carry-over Aug. 1 [1]				
	1930–31	1931–32	1932–33	1933–34	1930	1931	1932	1933	1934
	1,000 bales	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
Total [2]	13,755.5	16,628.9	12,709.6	12,660.0	4,321.7	6,262.7	9,576.8	8,079.5	7,645.1
Total American upland	13,732.2	16,615.2	12,701.3	12,650.3	4,313.6	6,246.0	9,560.3	8,069.7	7,638.1
Total American-Egyptian	23.3	13.7	8.3	9.7	8.1	16.7	16.5	9.8	7.0
Grade (American upland):									
Extra White:									
Above Good Middling	1.0	.6	1.8	.4	.3			.1	.3
Good Middling	123.1	76.7	106.9	272.7	24.8	30.4	33.3	21.7	157.7
Strict Middling	214.4	174.2	132.8	597.5	29.3	24.6	40.4	32.1	821.0
Middling	107.6	88.1	88.2	422.7	15.4	16.8	19.0	34.2	1,128.1
Strict Low Middling	31.1	62.2	99.6	187.2	5.9	6.6	8.9	32.2	460.7
Low Middling	4.8	29.7	28.9	41.2	1.4	.9	2.5	14.1	81.4
Below Low Middling	18.6	4.3	1.8	.8	.5	.1	.1	.9	4.1
White:									
Middling Fair									
Strict Good Middling	13.0	10.9	1.2	2.2	3.6	3.2	3.2	2.2	1.8
Good Middling	892.3	940.0	251.3	273.6	159.7	219.9	454.7	202.1	125.2
Strict Middling	4,364.0	5,873.4	3,147.0	2,487.3	872.0	1,536.3	3,183.5	1,931.7	1,079.4
Middling	4,211.7	5,233.2	4,474.5	2,950.5	1,279.0	2,077.8	3,292.2	2,801.6	1,438.7
Strict Low Middling	1,749.7	1,759.2	1,569.2	1,135.2	583.0	928.3	1,083.3	1,210.1	686.5
Low Middling	576.9	640.3	330.3	235.9	286.8	273.9	243.1	255.0	171.9
Strict Good Ordinary	114.6	421.9	116.3	51.8	159.1	71.4	148.6	144.7	72.5
Good Ordinary	20.0	160.8	55.5	10.7	61.0	21.3	98.5	82.6	51.8
Spotted:									
Good Middling	147.2	115.3	193.6	482.4	32.5	93.1	102.4	102.6	111.9
Strict Middling	557.0	428.5	1,054.0	2,138.0	160.6	383.0	392.3	547.3	478.1
Middling	335.2	247.9	673.0	1,030.5	210.1	348.2	244.3	385.9	378.8
Strict Low Middling	143.7	185.2	217.5	220.8	136.6	95.3	59.0	101.3	112.5
Low Middling	31.2	71.3	78.8	55.5	63.6	27.1	31.4	56.8	57.5
Yellow Tinged:									
Strict Good Middling	.2					.1	.1		.2
Good Middling	7.4	1.6	2.7	4.0	2.6	4.9	3.2	2.7	3.6
Strict Middling	20.7	4.5	10.7	7.7	16.6	18.3	16.5	14.2	22.9
Middling	14.9	7.3	9.0	6.4	38.4	21.2	19.5	16.0	27.5
Strict Low Middling	10.1	8.1	9.7	2.2	38.5	11.5	11.3	8.3	45.4
Low Middling	2.3	2.4	1.7	1.2	19.9	5.5	4.9	4.0	35.3
Light Yellow Stained:									
Good Middling		.1	.1	.2	.1	.1	.1	.1	.2
Strict Middling	.6	.2	.1	.1	1.4	.4	.2	.2	.1
Middling	1.2	.4	.1	.2	3.7	1.1	.5	.2	.2
Yellow Stained:									
Good Middling				.1					.1
Strict Middling	.2			.1	.6	.4	.4	.1	.4
Middling	.4	.1	.1		6.4	1.6	.9	.1	1.8
Gray:									
Good Middling	.4	.5	1.2			.1	.4	.2	
Strict Middling	3.2	6.9	5.9	1.8	1.0	.7	2.1	2.1	2.7
Middling	1.0	5.1	3.0	1.1	1.0	.6	2.1	1.7	2.7
Blue Stained:									
Good Middling	.1					.1			
Strict Middling		.1		.1	.1		.2		.2
Middling	.2				.6	.2	.2		.3
No grade [3]	12.2	54.2	34.8	28.2	97.5	21.0	57.2	60.6	74.6
Staple length (American upland):									
Shorter than 7/8 inch	1,829.2	1,019.5	837.7	534.9	446.8	463.2	298.3	188.4	233.4
7/8 and 29/32 inch	5,327.7	6,593.3	4,786.5	4,486.1	1,445.6	2,615.7	3,392.6	2,503.6	2,534.1
15/16 and 31/32 inch	3,421.6	4,511.9	3,671.0	3,997.5	825.4	1,528.2	2,704.0	2,199.3	2,112.9
1 and 1 1/32 inches	1,725.9	2,557.1	1,822.0	2,020.3	783.0	849.2	1,657.6	1,774.6	1,477.4
1 1/16 and 1 3/32 inches	970.9	1,087.8	871.8	820.0	389.3	414.8	754.5	671.7	615.6
1 1/8 and 1 5/32 inches	393.3	590.0	622.1	640.7	283.4	269.5	546.7	562.9	529.2
1 3/16 and 1 7/32 inches	60.8	224.6	84.5	144.7	115.8	89.7	174.0	143.6	111.6
1 1/4 inches and longer	2.8	31.0	5.7	6.1	24.3	15.7	32.6	25.6	23.9
Tenderability: [4]									
Total tenderable	11,623.2	14,833.9	11,489.1	11,785.8	3,416.3	5,543.3	8,882.7	7,437.4	6,969.8
Total untenderable	2,109.0	1,781.3	1,212.2	864.5	897.3	702.7	677.6	632.3	668.3

[1] Carry-over of foreign cotton not included (see table 118).
[2] Report of Bureau of the Census.
[3] Includes bales not otherwise classified above.
[4] According to sec. 5, United States Cotton Futures Act.

Bureau of Agricultural Economics; see Statistical Bulletins 40 and 47 and subsequent reports for details.

TABLE 121.—*Cotton: Mill consumption of American and other growths in the world, United States, and foreign countries, 1913–14 to 1933–34*

Year beginning August [1]	World			United States			Foreign countries		
	All growths	American [2]	Other growths	All growths	American [2]	Other growths	All growths	American [2]	Other growths
	1,000 bales [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]
1913–14	22,200	13,825	8,375	5,577	5,383	194	16,623	8,442	8,181
1914–15	20,671	13,249	7,422	5,597	5,375	222	15,074	7,874	7,200
1915–16	21,978	13,039	8,939	6,398	6,081	317	15,580	6,958	8,622
1916–17	21,109	12,561	8,548	6,789	6,470	319	14,320	6,091	8,229
1917–18	18,516	10,871	7,645	6,566	6,382	184	11,950	4,489	7,461
1918–19	16,705	9,909	6,796	5,766	5,590	176	10,939	4,319	6,620
1919–20	19,300	11,898	7,402	6,420	6,003	417	12,880	5,895	6,985
1920–21	16,905	10,268	6,637	4,893	4,677	216	12,012	5,591	6,421
1921–22	19,990	12,209	7,781	5,910	5,613	297	14,080	6,596	7,484
1922–23	21,325	12,449	8,876	6,666	6,322	344	14,659	6,124	8,535
1923–24	19,982	10,917	9,065	5,681	5,353	328	14,301	5,564	8,737
1924–25	22,642	13,311	9,331	6,193	5,917	276	16,449	7,394	9,055
1925–26	23,930	14,010	9,920	6,456	6,176	280	17,474	7,834	9,640
1926–27	25,869	15,748	10,121	7,190	6,880	310	18,679	8,868	9,811
1927–28	25,285	15,576	9,709	6,834	6,535	299	18,451	9,041	9,410
1928–29	25,782	15,226	10,556	7,091	6,778	313	18,691	8,448	10,243
1929–30	24,878	13,021	11,857	6,106	5,803	303	18,772	7,218	11,554
1930–31	22,402	11,113	11,289	5,263	5,084	179	17,139	6,029	11,110
1931–32	22,896	12,506	10,390	4,866	4,744	122	18,030	7,762	10,268
1932–33	24,986	14,405	10,581	6,137	6,004	133	18,849	8,401	10,448
1933–34	25,324	13,680	11,644	5,700	5,552	148	19,624	8,127	11,497

[1] Year beginning Aug. 1 except 1913, which is the year beginning Sept 1.

[2] "American" cotton means cotton which is grown in the United States.

[3] American in running bales and other growths in bales of 478 pounds net. Prior to 1919–20 the quantities given for world consumption of all growths were reported in bales of 500 pounds net and have been converted to equivalent 478-pound bales.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census except consumption figures for American cotton in foreign countries, which are compiled from the Cotton Yearbook of the New York Cotton Exchange, 1934, p. 37.

The figures for the consumption of "other growths" in the world and in foreign countries were computed by deduction.

TABLE 122.—*Cotton: Average price per pound received by producers, United States, 1925–26 to 1934–35*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	23.4	22.5	21.5	18.1	17.4	17.4	17.6	16.5	16.6	16.0	16.1	15.4	19.6
1926–27	16.1	16.8	11.7	11.0	10.0	10.6	11.5	12.5	12.3	13.9	14.8	15.5	12.5
1927–28	17.1	22.5	21.0	20.0	18.7	18.6	17.0	17.8	18.7	20.1	19.7	21.0	20.2
1928–29	18.8	17.6	18.1	17.8	18.0	17.9	18.0	18.8	18.5	18.0	17.9	17.8	18.0
1929–30	18.0	18.2	17.5	16.2	16.0	15.8	14.8	13.8	14.7	14.5	14.0	11.9	16.8
1930–31	11.4	9.9	9.2	9.6	8.7	8.6	9.1	9.6	9.3	8.8	7.7	8.5	9.5
1931–32	6.3	5.9	5.3	6.1	5.5	5.6	5.8	6.2	5.7	5.2	4.6	5.1	5.7
1932–33	6.5	7.2	6.4	5.9	5.4	5.6	5.5	6.1	6.1	8.2	8.7	10.6	6.5
1933–34	8.8	8.8	9.0	9.6	9.6	10.3	11.7	11.7	11.6	11.0	11.6	12.3	9.7
1934–35	13.1	13.1	12.5	12.3	12.4	------	------	------	------	------	------	------	[1] 12.6

[1] Preliminary.

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 266.

TABLE 123.—*Cotton, Middling, ⅞-inch: Average spot price per pound at 10 designated markets, 1915–16 to 1933–34*

Year beginning August—	Norfolk	Augusta	Savannah	Montgomery	New Orleans	Memphis	Little Rock	Dallas	Houston	Galveston	Average of 10 markets[1]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1915–16	11.62	11.56	11.72	11.37	11.68	11.83	11.84	11.51	12.00	12.06	11.72
1916–17	18.85	19.07	[2] 19.54	18.86	18.84	19.08	18.89	18.43	18.92	19.06	[3] 18.96
1917–18	28.82	29.01	29.29	29.15	28.96	29.49	29.05	28.47	28.85	29.06	29.02
1918–19	28.74	29.21	30.02	29.28	29.87	30.11	29.75	29.64	30.26	30.78	29.76
1919–20	37.32	37.93	38.22	37.52	38.21	38.70	38.38	38.95	38.78	39.41	38.34
1920–21	16.92	16.62	17.20	16.37	16.55	17.20	16.69	15.79	16.33	16.89	16.66
1921–22	18.00	17.97	18.12	17.48	17.92	18.38	18.12	17.84	18.46	18.64	18.09
1922–23	25.87	25.92	25.87	25.49	25.94	26.21	25.78	25.31	25.94	26.03	25.83
1923–24	30.15	30.06	30.00	29.82	30.33	30.42	30.22	29.66	30.28	30.48	30.14
1924–25	24.38	24.24	24.27	23.71	24.21	24.19	24.27	23.91	24.50	24.57	24.22
1925–26	19.78	19.53	19.61	18.98	19.71	19.77	19.70	19.64	20.00	20.12	19.68
1926–27	14.56	14.37	14.46	13.85	14.74	14.31	14.29	13.91	14.73	14.79	14.40
1927–28	20.17	20.09	20.06	19.46	19.98	19.44	19.31	19.04	19.76	19.84	19.72
1928–29	19.07	18.95	18.92	18.42	18.98	18.31	18.29	18.19	18.74	18.82	18.67
1929–30	16.34	15.97	15.98	15.41	16.16	15.43	15.33	15.32	15.89	16.00	15.79
1930–31	10.11	9.73	9.81	9.28	10.08	9.22	9.10	9.19	9.74	9.82	9.61
1931–32	6.23	6.08	6.09	5.69	6.20	5.59	5.48	5.57	5.93	6.03	5.89
1932–33	7.38	7.37	7.25	6.98	7.26	7.04	6.96	6.84	7.18	7.18	7.15
1933–34	10.99	10.99	10.91	10.64	10.92	10.66	10.60	10.56	10.90	10.90	10.81

[1] Averages of monthly averages of 10 markets.
[2] 11 months. Comparable data not available for February.
[3] Excludes Savannah for February.

Bureau of Agricultural Economics; compiled from the daily reports to the Bureau from the cotton exchanges of the various markets.

TABLE 124.—*Cotton, Middling, ⅞-inch: Average spot price per pound at New Orleans and 10 markets combined, 1919–20 to 1934–35*

Market and year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
New Orleans:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1919–20	31.38	30.38	35.28	39.58	39.89	40.28	39.39	40.69	41.41	40.31	40.49	39.41	38.21
1920–21	34.03	27.48	20.95	17.65	14.59	14.53	12.85	11.08	11.17	11.80	11.03	11.49	16.55
1921–22	12.78	19.35	18.99	17.27	17.16	16.53	16.36	16.74	16.80	19.31	21.68	22.01	17.92
1922–23	21.55	20.74	22.05	25.34	25.48	27.51	28.78	30.43	28.42	26.63	28.61	25.73	25.94
1923–24	24.22	27.71	29.18	33.68	34.88	33.93	31.90	28.74	30.41	30.70	29.43	29.23	30.33
1924–25	26.65	22.79	23.48	23.95	23.66	23.66	24.61	25.52	24.52	23.54	24.07	24.05	24.21
1925–26	23.07	23.09	20.86	19.82	19.27	20.26	19.83	18.35	18.11	18.06	17.54	18.24	19.71
1926–27	18.01	16.14	12.68	12.52	12.22	13.17	13.82	14.10	14.42	15.68	16.47	17.63	14.74
1927–28	19.36	21.53	20.73	19.99	19.26	18.72	17.90	18.94	20.07	20.77	21.10	21.45	19.98
1928–29	19.00	17.94	18.79	19.00	19.36	19.14	19.07	19.97	19.23	18.74	18.81	18.73	18.98
1929–30	18.57	18.45	18.08	17.19	17.04	16.84	15.25	14.87	15.79	15.60	13.56	12.65	16.16
1930–31	11.56	10.58	10.40	10.63	9.65	9.87	10.63	10.59	9.95	9.08	8.86	9.10	10.08
1931–32	7.02	6.20	6.06	6.32	6.10	6.50	6.69	6.74	6.12	5.70	5.18	5.73	6.20
1932–33	7.29	7.58	6.51	6.12	5.84	6.12	5.92	6.32	6.88	8.58	9.33	10.68	7.26
1933–34	9.48	9.38	9.29	9.74	9.94	10.95	12.07	12.16	11.81	11.39	12.13	12.75	10.92
1934–35	13.28	13.01	12.58	12.59	12.78	12.70	12.58	11.57	------	------	------	------	------
10 markets combined:													
1919–20	31.50	30.30	35.44	39.59	39.70	40.46	39.49	40.68	41.74	41.01	40.58	39.58	38.34
1920–21	34.78	28.24	21.38	17.83	14.63	14.42	12.93	11.19	11.01	11.55	10.77	11.13	16.66
1921–22	12.53	19.50	19.25	17.43	17.47	17.04	16.73	17.12	16.92	19.22	21.58	22.27	18.09
1922–23	21.53	20.72	22.11	25.20	25.40	27.39	28.62	30.21	28.28	26.47	28.20	25.87	25.83
1923–24	24.22	27.67	28.90	33.30	34.39	33.69	31.73	28.54	30.25	30.32	29.37	29.32	30.14
1924–25	27.16	22.74	23.29	23.63	23.40	23.52	24.51	25.51	24.56	23.61	24.19	24.55	24.22
1925–26	23.35	23.23	20.95	19.92	19.31	20.04	19.63	18.33	18.05	17.95	17.52	17.92	19.68
1926–27	17.65	15.96	12.40	12.17	11.81	12.72	13.45	13.74	14.08	15.38	16.10	17.34	14.40
1927–28	19.16	21.19	20.35	19.74	18.99	18.44	17.60	18.76	19.76	20.54	20.82	21.25	19.72
1928–29	18.72	17.72	18.46	18.70	19.07	18.88	18.86	19.78	18.95	18.23	18.36	18.29	18.67
1929–30	18.04	18.01	17.62	16.75	16.64	16.56	15.11	14.74	15.40	15.12	13.21	12.21	15.79
1930–31	11.14	10.15	9.82	10.09	9.16	9.37	10.12	10.15	9.50	8.70	8.42	8.66	9.61
1931–32	6.57	5.83	5.75	5.95	5.78	6.15	6.40	6.44	5.83	5.41	4.99	5.54	5.89
1932–33	7.08	7.40	6.37	6.03	5.72	6.01	5.85	6.19	6.84	8.49	9.28	10.52	7.15
1933–34	9.24	9.19	9.16	9.65	9.87	10.91	12.02	12.09	11.66	11.28	12.04	12.58	10.81
1934–35	13.12	12.85	12.40	12.46	12.60	12.55	12.47	11.57	------	------	------	------	------

Bureau of Agricultural Economics; compiled from daily reports to the Bureau from the cotton exchanges of the various markets. Data for earlier years appear in previous issues of the Yearbook.

TABLE 125.—*Cotton: Average discounts and premiums for staples shorter or longer than 7/8-inch Middling spot cotton, 1924–25 to 1933–34*

Year beginning August—	Discount for 13/16 inch [1]	7/8-inch, average price per pound [2]	Premiums for [3]—					
			15/16 inch	1 inch	1 1/16 inches	1 1/8 inches	1 3/16 inches	1 1/4 inches
	Points [4]	*Cents*	*Points* [4]	*Points* [4]	*Points* [4]	*Points* [4]	*Points* [4]	*Points* [4]
1924–25	85	24.22	58	82	176	396	621	898
1925–26	125	19.68	76	106	202	396	635	935
1926–27	100	14.40	66	106	159	266	480	860
1927–28	94	19.72	37	93	166	275	409	631
1928–29	67	18.67	33	96	177	237	332	587
1929–30	108	15.79	45	118	182	232	347	630
1930–31	95	9.61	41	91	154	192	317	670
1931–32	36	5.89	21	51	93	154	244	[5] 425
1932–33	21	7.15	14	39	75	106	[5] 201	[5] 425
1933–34	23	10.81	19	53	110	161	[5] 270	[5] 453

[1] Average of New Orleans, Houston, and Galveston, calculated from actual sales and partly estimated.
[2] Average for the 10 designated spot markets.
[3] Average of New Orleans and Memphis for 1 1/16 inches and longer and for 15/16 inch and 1 inch from 1924–25 to 1926–27, inclusive. Average of the 6 designated markets (New Orleans, Memphis, Houston, Galveston Dallas, and Little Rock) for 15/16 inch and 1 inch from 1927–28 to 1933–34, inclusive.
[4] Hundredths of a cent a pound.
[5] Memphis only.

Bureau of Agricultural Economics.

TABLE 126.—*Cotton: Average premiums and discounts for grades [1] above and below Middling for the 10 designated spot markets, 1924–25 to 1933–34*

Year beginning August—	Premiums for—				Middling, [1] average price per pound	Discounts for—			
	Middling Fair	Strict Good Middling	Good Middling	Strict Middling		Strict Low Middling	Low Middling	Strict Good Ordinary [2]	Good Ordinary [2]
	Points [3]	*Points* [3]	*Points* [3]	*Points* [3]	*Cents*	*Points* [3]	*Points* [3]	*Points* [3]	*Points* [3]
1924–25	108	84	60	37	24.22	74	171	289	406
1925–26	124	98	73	50	19.68	110	268	432	563
1926–27	129	106	82	58	14.40	104	238	381	501
1927–28	100	76	51	33	19.72	51	114	197	284
1928–29	81	60	42	28	18.67	73	153	236	322
1929–30	92	76	61	41	15.79	74	170	278	376
1930–31	88	70	52	31	9.61	59	138	226	305
1931–32	70	56	41	24	5.89	29	64	101	138
1932–33	62	50	39	25	7.15	27	55	89	123
1933–34	71	56	44	30	10.81	35	75	123	165

[1] White standards and 7/8-inch staple.
[2] These grades untenderable according to sec. 5 of the United States Cotton Futures Act.
[3] Hundredths of a cent a pound.

Bureau of Agricultural Economics. Data for earlier years in 1934 Yearbook, table 126.

TABLE 127.—*Cotton: Average spot price per pound at Liverpool, by kind and by months, 1924–25 to 1934–35*

Description and year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
American Middling:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	31.63	26.49	26.14	26.08	25.73	26.08	27.14	28.04	26.85	25.83	27.34	27.76	27.09
1925–26	26.29	26.25	23.16	21.40	20.46	21.68	21.41	20.32	20.38	20.72	19.97	19.77	21.82
1926–27	19.69	19.34	14.52	14.07	13.46	14.56	15.55	15.65	16.14	17.90	18.49	19.43	16.57
1927–28	21.09	24.17	23.36	22.73	21.98	21.68	20.54	21.80	22.75	23.52	23.70	24.43	22.65
1928–29	21.39	20.87	21.86	21.62	21.57	21.39	21.09	22.32	21.57	20.62	20.89	21.09	21.36
1929–30	21.01	20.93	20.52	19.61	19.22	19.00	17.36	16.83	17.72	17.46	16.16	15.47	18.44
1930–31	14.09	12.63	11.88	12.13	10.99	11.19	12.06	12.09	11.42	10.56	10.00	10.26	11.61
1931–32	7.91	7.70	7.65	7.70	7.38	7.78	8.25	8.31	7.59	6.92	6.43	6.92	7.54
1932–33	8.11	8.87	7.91	7.52	7.09	7.37	7.10	7.29	8.01	9.88	10.77	12.32	8.52
1933–34	10.96	10.67	10.66	11.24	11.19	12.43	13.86	13.86	13.31	13.04	13.86	14.60	12.47
1934–35	15.13	14.69	14.27	14.28	14.65	14.60	14.36	------	------	------	------	------	------
Indian Oomra, No. 1, Fine:													
1924–25	24.43	21.78	23.44	24.76	24.46	23.73	24.16	24.76	23.18	21.99	22.38	22.80	23.49
1925–26	22.26	22.80	20.70	18.90	17.57	18.17	17.56	16.20	15.96	16.38	15.59	15.76	18.15
1926–27	16.06	15.98	13.08	12.69	12.17	12.98	13.79	13.87	14.32	15.92	16.65	17.46	14.58
1927–28	18.29	20.70	19.79	18.70	18.13	17.88	16.99	17.97	18.37	18.88	19.08	19.14	18.66
1928–29	16.57	15.65	16.26	16.53	16.99	16.75	16.42	17.50	16.14	15.33	15.69	15.73	16.30
1929–30	15.73	15.71	15.37	14.50	14.32	13.87	12.09	11.36	11.66	11.36	10.18	9.21	12.95
1930–31	8.23	8.15	8.17	8.68	7.73	7.91	8.84	8.84	8.33	7.73	7.62	8.05	8.19
1931–32	6.45	6.19	6.50	6.91	6.75	7.55	7.81	7.61	6.92	6.28	5.77	6.32	6.76
1932–33	7.27	7.87	6.95	6.73	6.32	6.61	6.33	6.32	6.44	7.96	8.70	9.98	7.29
1933–34	8.78	8.55	8.44	8.75	8.53	9.38	10.09	9.87	9.38	9.49	10.37	10.61	9.35
1934–35	10.81	10.34	9.74	9.98	10.59	11.07	11.17	------	------	------	------	------	------
Egyptian Sakellaridis, Fully Good Fair:													
1924–25	48.28	46.30	47.23	49.63	55.60	60.71	69.40	73.39	63.32	62.00	64.36	65.04	58.77
1925–26	61.13	56.96	50.91	41.51	35.76	37.19	36.62	32.32	32.38	34.07	33.94	32.85	40.47
1926–27	32.04	36.32	31.21	30.23	27.82	27.96	27.82	27.46	28.06	33.15	34.41	37.92	31.20
1927–28	39.13	40.57	38.51	37.80	35.48	35.61	35.38	39.90	42.97	43.49	43.03	40.64	39.38
1928–29	37.61	36.54	36.74	37.35	39.11	38.83	36.52	38.69	37.55	35.79	33.44	33.78	36.83
1929–30	34.07	34.90	32.16	30.27	28.87	29.26	27.62	28.02	28.79	28.37	25.79	25.10	29.44
1930–31	23.22	20.89	19.61	19.51	16.22	17.01	19.47	19.59	17.74	16.59	15.63	15.57	18.42
1931–32	12.15	11.82	11.60	11.50	10.05	10.38	10.93	11.25	10.30	9.33	8.93	10.04	10.69
1932–33	11.47	12.60	11.31	10.58	9.64	10.36	10.15	10.18	11.04	13.24	14.35	16.31	11.77
1933–34	14.75	14.29	13.85	15.19	15.54	17.74	19.19	18.81	18.04	17.85	17.69	17.79	16.73
1934–35	18.44	17.54	16.82	18.25	18.57	18.39	17.95	------	------	------	------	------	------
Egyptian Uppers, Fully Good Fair:													
1924–25	44.38	36.63	33.35	34.28	36.31	39.11	39.35	41.87	40.44	38.39	37.43	38.07	38.30
1925–26	37.01	36.11	34.36	31.68	29.44	28.92	27.46	25.18	24.88	25.24	25.18	24.25	29.14
1926–27	24.78	27.09	22.55	21.25	19.06	20.76	21.41	21.82	22.10	25.63	27.19	28.98	23.55
1927–28	30.52	31.90	30.60	30.09	28.45	28.06	26.44	28.77	30.98	31.33	30.15	29.20	29.71
1928–29	25.91	24.11	25.18	24.84	24.84	24.94	24.43	26.12	25.08	23.38	22.97	23.03	24.57
1929–30	22.89	23.54	22.45	21.60	21.23	21.29	20.66	20.52	21.13	20.80	19.45	19.47	21.25
1930–31	17.92	17.09	14.28	13.71	12.49	12.98	14.46	14.42	13.38	12.55	11.92	12.25	13.95
1931–32	9.51	9.55	8.93	8.97	8.20	8.81	9.53	9.83	9.00	8.21	7.90	8.74	8.93
1932–33	10.08	10.95	10.05	9.76	9.18	9.57	9.30	9.18	9.81	11.96	12.73	14.71	10.61
1933–34	13.32	12.61	12.10	12.55	12.60	13.91	15.06	15.05	14.22	14.08	14.53	15.16	13.77
1934–35	15.79	15.15	14.72	15.36	16.01	16.29	15.60	------	------	------	------	------	------

Bureau of Agricultural Economics. Compiled from market reports of the Liverpool Cotton Association. Average of Friday's prices, except when Friday was a holiday, the prices on the preceding business day were used. Converted from pence to cents at the current rate of exchange. Prices in this table are revised and do not always agree with those published in Yearbooks prior to the 1933 issue.

TABLE 128.—*Cotton: International trade, average 1925–26 to 1929–30, annual 1930–31 to 1933–34*

Country	Year beginning July									
	Average 1925–26 to 1929–30		1930–31		1931–32		1932–33		1933–34 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
United States	8,579	399	7,048	107	8,989	139	8,647	133	8,366	[2] 157
British India	2,938	176	3,152	388	1,565	476	2,126	193	2,585	202
Egypt	1,484	0	1,284	0	1,652	0	1,274	0	1,875	0
Brazil	119	0	109	0	40	0	5	0	236	0
Argentina	88	[3] 1	107	1	123	0	122	0	92	0
Total	13,208	576	11,700	496	12,369	615	12,174	326	13,154	359
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	3,070	0	2,172	0	2,475	0	2,460	0	2,950
Japan	0	3,061	0	2,777	0	3,628	0	3,089	0	3,563
Germany	325	1,900	358	1,645	350	1,666	270	1,771	253	1,923
France	100	1,640	43	1,664	47	787	24	1,402	12	1,473
Italy	1	1,053	1	791	0	856	0	898	2	1,009
China [4]	289	636	230	964	220	1,298	[5] 185	[5] 1,036	202	556
Czechoslovakia	4	567	1	450	1	395	0	340	1	349
Belgium	14	400	38	357	73	300	61	368	114	388
Poland	0	283	0	282	0	218	0	241	0	314
Canada	0	271	0	209	0	202	0	191	0	317
Netherlands	2	192	1	215	2	189	1	152	2	207
Austria	1	149	0	99	0	115	0	88	1	138
Switzerland	0	141	0	123	2	109	0	117	0	123
Sweden	0	106	0	96	0	121	0	109	0	137
Total	736	13,469	672	11,844	695	12,359	541	12,262	587	13,447

[1] Preliminary.
[2] Imports for consumption.
[3] 3-year average.
[4] Calendar year.
[5] Beginning July 1, 1932, figures do not include Manchuria.

Bureau of Agricultural Economics; official sources except where otherwise noted.

Bales of 500 pounds gross weight or 478 pounds net. The figures for cotton refer to ginned and unginned cotton, but do not include linters, mill waste, cotton batting, scarto (Egyptian and Sudan), when separately stated. Wherever unginned cotton has been separately stated in the original reports it has been reduced to ginned cotton in this statement at the ratio of 3 pounds unginned to 1 pound ginned.

TABLE 129.—*Cottonseed and cottonseed products: Cottonseed production, weighted average price per ton received by producers, farm value, quantity crushed, and products, 1919–20 to 1934–35*

Year beginning August	Cottonseed				Cottonseed products [1]			
	Production [2]	Price, Dec. 1	Farm value	Quantity crushed [1]	Crude oil	Cake and meal	Linters	Hulls
	1,000 short tons	*Dollars*	*1,000 dollars*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 running bales*	*1,000 short tons*
1919–20	5,074			4,013	606	1,817	595	1,143
1920–21	5,971			4,069	655	1,786	429	1,256
1921–22	3,531	28.79	101,577	3,008	465	1,355	382	937
1922–23	4,336	35.67	154,433	3,242	501	1,487	591	944
1923–24	4,502	42.99	193,576	3,308	490	1,518	640	941
1924–25	6,051	32.39	195,944	4,605	702	2,126	858	1,331
1925–26	7,150	27.28	195,042	5,558	809	2,597	1,044	1,547
1926–27	7,982	18.68	149,233	6,306	944	2,840	1,042	1,854
1927–28	5,759	36.80	211,897	4,654	738	2,093	875	1,320
1928–29	6,435	36.28	233,415	5,061	802	2,282	1,086	1,368
1929–30	6,590	30.33	199,885	5,016	786	2,232	1,038	1,384
1930–31	6,190	21.61	133,785	4,715	721	2,165	824	1,304
1931–32	7,602	10.44	79,340	5,328	847	2,402	876	1,511
1932–33	5,783	9.27	53,635	4,621	723	2,093	741	1,312
1933–34	5,804	13.57	78,783	4,157	652	1,889	801	1,103
1934–35 [3]	4,324	35.64	154,106					

[1] Crushings and products are not limited to the crop specified.
[2] Estimated from the production of lint cotton, assuming 65 pounds of seed for each 35 pounds of lint. Refers to the cotton crop of the year stated.
[3] Preliminary.

Bureau of Agricultural Economics. Production, farm price and value, are estimates of the Crop Reporting Board; quantity crushed and products from annual reports of the Bureau of the Census, Cotton Production and Distribution.

TABLE 130.—*Cottonseed: Production and weighted average price per ton received by producers, by States, average 1928–32, and annual 1933 and 1934*

State	Production [1] from crop of—			Price for crop of—	
	Average, 1928–32	1933	1934 [2]	1933	1934 [2]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*Dollars*	*Dollars*
Missouri	102	112	109	11.58	32.00
Virginia	20	17	17	15.95	37.60
North Carolina	333	304	288	16.25	35.90
South Carolina	380	326	308	17.88	35.80
Georgia	551	490	442	17.49	35.20
Florida	16	12	12	14.40	29.20
Tennessee	213	197	183	14.05	36.60
Alabama	558	431	429	16.01	34.20
Mississippi	693	515	509	15.92	37.20
Arkansas	600	463	389	13.70	35.70
Louisiana	331	212	217	13.18	34.10
Oklahoma	493	563	144	11.34	36.20
Texas	2,041	1,973	1,066	13.66	37.30
New Mexico	40	42	41	11.34	38.60
Arizona	57	43	49	12.38	30.90
California	89	97	113	12.60	32.20
All other	5	7	8	12.99	35.60
United States	6,520	5,804	4,324	14.43	35.84

[1] Computed from lint production, assuming 65 pounds of cottonseed for each 35 net pounds of lint.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 131.—*Cottonseed: Average price per ton received by producers, United States, 1925–26 to 1934–35*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	36.52	33.48	32.82	27.64	27.87	28.40	29.06	29.47	31.51	30.84	31.89	31.31	30.82
1926–27	29.73	27.38	20.06	18.66	18.05	18.55	22.39	25.43	25.80	26.05	26.27	26.59	21.55
1927–28	25.95	34.41	36.60	37.51	37.14	37.40	37.44	37.77	39.40	43.00	41.25	39.27	35.94
1928–29	36.87	31.02	34.08	37.17	37.74	38.05	38.73	39.36	38.94	37.78	35.83	34.84	35.26
1929–30	32.69	31.03	31.40	30.75	30.31	28.95	28.89	28.63	29.74	30.61	29.66	27.35	30.43
1930–31	23.99	23.89	20.73	21.26	21.28	21.25	21.87	22.43	22.85	22.32	20.32	19.52	21.93
1931–32	14.71	8.93	7.66	11.61	11.01	10.38	10.12	10.17	9.78	9.66	8.85	8.61	9.52
1932–33	9.13	11.28	10.45	9.54	8.87	8.81	8.91	9.22	10.03	12.00	12.96	16.59	10.35
1933–34	15.60	12.11	12.58	13.67	15.35	16.18	18.90	20.84	21.88	22.23	21.59	22.18	14.43
1934–35	25.46	31.54	35.62	37.08	39.90	------	------	------	------	------	------	------	[1] 35.84

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighing State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 272.

TABLE 132.—*Cottonseed oil, crude: Average price per pound in tanks, f. o. b. southeastern mills, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average [1]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	------	9.14	8.55	8.90	8.98	9.75	10.71	11.00	11.22	12.17	------	------	10.05
1926–27	10.88	8.19	7.44	6.64	6.36	6.94	8.20	7.73	7.33	7.74	8.04	------	7.77
1927–28	8.70	9.25	9.45	9.05	8.72	8.48	7.75	8.44	8.75	8.88	------	------	8.75
1928–29	------	8.16	8.14	8.24	8.38	[2] 8.63	9.12	9.00	8.37	7.94	------	------	8.44
1929–30	------	7.66	7.33	7.38	7.26	7.24	7.40	7.13	7.48	7.32	6.95	7.00	7.29
1930–31	6.76	6.48	6.14	6.35	6.12	6.18	6.37	6.75	6.72	6.38	6.27	------	6.41
1931–32	------	3.60	3.54	3.80	[3] 3.33	3.24	3.22	3.12	2.61	2.56	2.86	3.24	3.19
1932–33	3.71	3.71	3.25	3.00	2.72	2.90	2.74	2.88	3.18	4.16	4.38	5.45	3.51
1933–34	4.48	3.57	3.23	3.58	3.43	3.56	4.18	4.44	4.40	4.23	4.68	5.10	4.09
1934–35	5.65	6.55	7.20	7.91	8.94	------	------	------	------	------	------	------	------

[1] Where quotations are missing, average is for months shown.
[2] January 1929–July 1930 quoted in barrels.
[3] Less than 10 quotations during the month. Other quotations were bids.

Bureau of Agricultural Economics; compiled from the Oil, Paint, and Drug Reporter; prices, 1925–26 to 1927–28 are averages of weekly quotations; beginning 1928–29, averages of daily quotations; October 1932–June 1933, from New York Journal of Commerce, average of Saturday quotations during the month. Data for 1909–10 to 1924–25 are available in the 1930 Yearbook, table 149.

TABLE 133.—*Cottonseed oil, prime summer yellow: Average spot price per pound, New York, 1925–26 to 1934–35* [1]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	11.09	10.81	9.86	10.32	10.47	11.33	11.28	12.24	12.38	14.48	15.38	14.99	12.05
1926–27	12.99	11.42	8.82	8.20	8.22	8.50	9.31	9.39	8.78	9.09	9.19	9.57	9.46
1927–28	9.89	10.74	10.83	10.55	10.06	10.02	9.27	9.64	10.04	10.52	10.22	10.03	10.15
1928–29	9.44	10.03	9.84	9.69	10.21	20.33	10.88	10.74	10.11	9.75	9.64	9.62	10.02
1929–30	9.27	9.19	9.23	9.01	8.77	8.46	8.46	8.41	8.80	8.76	8.23	7.99	8.72
1930–31	8.34	8.20	7.60	7.57	7.28	7.20	7.29	7.58	7.55	6.99	6.76	7.00	7.45
1931–32	5.77	4.39	4.48	4.55	4.09	4.08	3.95	3.96	3.46	3.18	3.34	3.83	4.09
1932–33	4.51	4.48	3.97	3.75	3.48	3.62	3.53	3.77	4.08	4.99	5.48	6.17	4.32
1933–34	5.16	4.61	4.19	[2] 4.50	4.30	4.70	5.10	5.10	5.20	5.00	5.30	5.90	4.92
1934–35	6.80	7.50	8.10	9.20	10.10	------	------	------	------	------	------	------	------

[1] Prices through July 1930 quoted in barrels; beginning August 1930, quoted in tanks.
[2] From November 1933 prices from Bureau of Labor Statistics.

Bureau of Agricultural Economics, compiled from Oil, Paint, and Drug Reporter, average of daily ranges.

Data for 1890–91 to 1924–25 are available in 1924 Yearbook, table 323; and 1934 Yearbook, table 132.

TABLE 134.—*Cottonseed oil: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average, 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	49,815	0	28,297	0	22,578	0	55,767	0	35,435	0
United Kingdom	46,146	18,657	38,835	35,564	33,378	13,803	38,078	13,581	21,007	16,968
Egypt	22,724	80	24,717	0	17,637	1	18,885	0	4,414	38
Peru	9,526	0	6,947	0	1,923	0	911	0	876	0
Brazil	352	23	2,314	2	0	2	10	7	------	------
Algeria	38	29	43	48	8	2	[2] 14	------	------	------
Total	128,601	18,789	101,153	35,614	75,524	13,808	113,665	13,588	61,732	17,006
PRINCIPAL IMPORTING COUNTRIES										
Canada	0	39,439	0	26,071	0	17,205	0	54,834	0	30,358
Germany	283	19,296	1,472	12,293	277	9,216	75	10,040	79	6,942
Netherlands	6,481	16,831	119	810	51	4,323	45	1,810	271	5,144
France	34	7,792	57	8,103	7	6,789	1	5,223	27	4,255
Denmark	809	6,624	786	4,686	484	5,919	517	3,104	618	1,150
Norway	0	4,474	0	1,363	0	582	0	1,655	0	592
Cuba	0	4,099	0	1,824	0	1,565	0	4,235	0	------
Malta [2]	1	3,034	0	3,125	0	3,559	0	3,751	------	------
Sweden	447	2,824	0	3,082	0	2,370	0	5,428	0	2,673
Irish Free State	0	2,356	0	4,170	0	2,982	0	4,126	0	------
Belgium	15	2,347	102	660	2	544	0	517	0	557
Australia [2]	1	1,914	103	1,465	0	1,313	90	1,196	------	------
Greece	0	1,478	0	36	0	1	0	0	0	0
Argentina	53	1,470	6	147	4	50	0	12	2	0
Syria and Lebanon [2]	0	1,325	0	209	0	114	0	914	0	------
Japan	600	[3] 831	2,013	1,148	10	1,154	12	1,751	13	3,684
Gambia [2]	9	622	0	715	0	385	0	397	0	------
Poland	0	585	0	862	0	398	0	416	0	30
Yugoslavia	0	498	0	47	0	69	0	7	0	1
Union of South Africa	0	425	0	629	0	235	0	348	0	141
Uruguay	0	298	0	15	0	[2] 16	0	[2] 6	0	------
Czechoslovakia	0	267	0	217	47	439	0	718	0	655
Italy	2	216	1	290	0	287	0	98	0	166
Total	8,676	119,045	4,659	71,967	882	59,515	740	100,286	1,010	56,348

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

Crude and refined cottonseed oil (when separately shown) have been added without converting, as in many countries information is not available as to which it is.

TABLE 135.—*Cottonseed meal, 41-percent protein: Average price per ton, Memphis, 1925–26 to 1934–35*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	44.10	36.90	34.40	34.10	34.00	32.60	31.10	31.00	31.90	30.70	31.00	31.10	33.60
1926–27	32.10	28.90	23.90	23.70	24.50	30.10	33.50	32.40	32.50	34.00	37.40	36.00	30.75
1927–28	[1]	37.40	37.70	39.60	41.40	40.40	45.10	49.30	55.50	61.50	[1]	41.50	------
1928–29	[1]	38.40	43.90	44.20	45.60	44.90	44.40	42.70	38.75	35.50	34.25	38.75	------
1929–30	[1]	41.00	39.30	37.80	37.00	35.40	33.50	33.60	36.75	38.00	35.50	33.60	------
1930–31	36.25	30.90	27.50	27.50	25.60	25.75	24.90	26.40	26.25	24.60	22.40	21.20	26.60
1931–32	17.30	13.80	13.20	16.60	14.45	13.80	12.78	12.44	12.85	12.65	11.50	13.15	13.71
1932–33	17.35	16.75	14.40	13.35	11.80	11.85	12.00	13.10	15.20	17.50	18.60	27.65	15.80
1933–34	22.90	18.40	16.70	19.25	19.25	22.50	24.00	24.00	22.00	21.25	23.25	27.05	21.71
1934–35	34.80	33.90	33.90	37.00	37.75	------	------	------	------	------	------	------	------

[1] Not reported.

Bureau of Agricultural Economics; compiled from reports made to the Bureau by its representative in the market.

TABLE 136.—*Cottonseed meal, 41-percent protein: Average price per ton, bagged, at 9 markets, 1934*

Market	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
Boston	31.65	33.65	33.65	32.15	30.90	32.70	34.70	39.95	41.15	42.15	43.45	44.30	36.70
Philadelphia	29.20	30.00	30.00	27.75	27.20	28.65	30.85	36.65	37.90	38.60	40.55	41.15	33.21
Buffalo	28.60	30.25	30.15	28.30	27.70	29.30	32.60	39.90	39.65	40.00	42.50	42.80	34.31
Cincinnati	26.80	29.00	29.00	27.65	26.50	28.30	31.10	37.65	------	39.60	42.75	43.50	32.90
Chicago	27.35	29.30	29.05	27.35	26.40	28.25	31.40	39.35	38.30	39.80	42.65	43.05	33.52
Los Angeles	23.00	24.00	24.00	24.25	24.30	24.50	27.70	31.75	33.65	34.90	34.80	35.45	28.52
St. Louis	25.50	27.75	27.90	27.15	25.25	26.70	30.35	38.10	37.10	37.75	41.15	41.60	32.19
San Francisco	23.50	24.50	24.50	25.00	25.50	26.50	30.80	34.55	37.50	37.50	37.75	40.30	30.66
Portland, Oreg	26.30	28.50	27.75	27.00	28.35	28.75	29.85	35.50	37.00	40.00	40.00	40.00	32.42

Bureau of Agricultural Economics; compiled from reports made to the Bureau by its representatives in the various markets.

TABLE 137.—*Sugar beets: Acreage, production, average price per ton received by producers, and value, United States,*[1] *1913–34*

Year	Acreage harvested	Yield per acre	Production	Price per ton	Farm value, basis average price	Year	Acreage harvested	Yield per acre	Production	Price per ton	Farm value, basis average price
	1,000 acres	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 dollars*		*1,000 acres*	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 dollars*
1913	580	10.1	5,886	5.69	33,491	1924	816	9.2	7,508	7.95	59,689
1914	483	11.6	5,585	5.45	30,438	1925	648	11.4	7,381	6.39	47,137
1915	611	10.7	6,511	5.67	36,950	1926	677	10.7	7,223	7.61	54,964
1916	665	9.4	6,228	6.12	38,139	1927	721	10.8	7,753	7.67	59,455
1917	665	9.0	5,980	7.39	44,192	1928	644	11.0	7,101	7.11	50,477
1918	594	10.0	5,949	10.00	59,494	1929	688	10.6	7,315	7.08	51,804
1919	692	9.3	6,421	11.74	75,420	1930	776	11.9	9,199	7.14	65,698
1920	872	9.8	8,538	11.63	99,324	1931	713	11.1	7,903	5.94	46,948
1921	815	9.6	7,782	6.35	49,392	1932	764	11.9	9,070	5.26	47,705
1922	530	9.8	5,183	7.91	41,017	1933	983	11.2	11,030	5.13	56,599
1923	657	10.7	7,006	8.99	62,965	1934 [2]	766	9.8	7,481	5.04	37,706

[1] Most years from 1913 to 1923 include a small unknown quantity of beets grown in Canada for Michigan factories.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised, 1924–28. See introductory text.

TABLE 138.—*Sugar beets: Acreage, yield, production, and average price per ton received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1924–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dol.*	*Dol.*
Ohio	27	42	39	9.0	7.8	8.0	231	328	312	5.71	
Michigan	71	154	117	7.6	7.8	8.5	509	1,203	999	5.81	
Nebraska	81	88	60	12.8	12.1	9.2	1,028	1,067	549	4.50	
Montana	39	68	64	10.8	12.3	12.3	439	838	786	5.46	
Idaho	36	75	34	9.9	11.2	8.6	383	837	294	5.16	
Wyoming	45	52	42	11.4	11.4	10.3	516	593	434	5.26	
Colorado	215	209	169	12.6	12.6	9.3	2,725	2,628	1,566	4.62	
Utah	49	74	32	11.4	12.3	7.8	587	912	250	4.80	
California	62	108	106	10.1	15.0	14.9	697	1,618	1,579	5.67	
Other States [2]	84	113	103	8.8	8.9	6.9	739	1,006	712	5.20	
United States	708	983	766	10.8	11.2	9.8	7,854	11,030	7,481	5.13	5.04

[1] Preliminary.
[2] States producing sugar beets for which figures are not shown above.
Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 139.—*Sugar beets: Acreage, yield per acre, production, and yield of sugar per short ton of beets sliced, in specified countries, average 1921–25, annual 1933 and 1934*

Country	Acreage			Yield per acre			Production			Yield of raw sugar per short ton of beets sliced		
	Average, 1921–25	1933	1934 [1]	Average, 1921–25	1933	1934 [1]	Average, 1921–25	1933	1934 [1]	Average, 1921–25	1933	1934 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short rons*	*1,000 short tons*	*1,000 short tons*	*Lb.*	*Lb.*	*Lb.*
Canada	30	44	52	9.8	10.4	7.9	293	457	413	277	338	
United States	693	983	766	10.1	11.2	9.8	6,965	11,030	7,481	298	328	337
United Kingdom	23	366	404	8.3	10.1	10.0	190	3,690	4,030	260	[3] 363	
Sweden	94	125	124	12.3	16.2	14.0	1,160	2,027	1,731	312	[3] 335	295
Denmark	83	107	107	11.6	18.1	8.0	966	1,940	858		[3] 330	207
Netherlands	167	117	104	14.4	18.4	14.6	2,402	2,147	1,521			
Belgium	170	129	132	12.8	13.0	13.4	2,173	1,671	1,771		[3] 289	300
France	413	675	679	10.8	12.2	13.6	4,472	8,224	9,204	266		
Spain	184	193	200	8.8	12.8		1,610	2,480		248		
Italy	207	202	221	12.8	11.7	13.2	2,646	2,366	2,923	220	284	259
Germany	982	751	881	10.8	12.6	11.4	10,595	9,457	10,011	321	345	326
Austria	35	115	123	9.0	10.2	12.0	316	1,177	1,479	323	322	325
Czechoslovakia	629	358	393	11.5	9.0	10.8	7,228	3,212	4,255	348	[3] 368	335
Hungary	133	108	111	8.2	9.6	9.1	1,085	1,041	1,006	271	335	301
Yugoslavia	71	75	79	7.6	7.5	7.3	540	562	573		314	241
Rumania	99	107	92	7.1	7.0		702	748				
Poland	326	245	279	9.0	8.3	10.2	2,926	2,042	2,841	317	373	345
Union of Soviet Socialist Republics	676	2,996	2,906	5.4	3.3	4.3	3,647	9,921	12,445	[4] 262		
Other [5]	41	158	246	7.3	8.7		300	1,373				
Total, countries reporting acreage and production all years	4,732	7,396	7,361	10.1	8.2	8.5	47,886	60,964	62,542			
Total, all countries reporting	5,056	7,854	7,899	9.9	8.3		50,216	65,565				

[1] Preliminary.
[2] Compiled from preliminary estimates reported by the International Association for Sugar Statistics.
[3] England and Wales only.
[4] 1-year only, 1925–26.
[5] Includes Switzerland, Bulgaria, Finland, and Australia in the 5-year average. Later years include also Irish Free State, Latvia, Lithuania, and Turkey, in which countries no sugar was produced prior to 1926–27.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

TABLE 140.—*Beet sugar: Production, United States, 1925–34*

Year [1]	Factories operating	Acreage from which beets were harvested [2]	Beets paid for by factories	Beets sliced	Sugar produced (chiefly refined) [3]	Analysis of beets		Recovery of sucrose from beets [5]		Sugar produced per ton of beets		Beet pulp produced	
						Purity coefficient [4]	Percentage of sucrose [5]	Paid for	Sliced	Paid for	Sliced	Molasses pulp	Dry pulp other than molasses pulp
	Number	*1,000 acres*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Percent*	*Percent*	*Percent*	*Percent*	*Lb.*	*Lb.*	*1,000 short tons*	*1,000 short tons*
1925	88	653	7,423	6,993	913	82.84	14.86	12.30	13.06	246	261	-------	-------
1926	78	687	7,300	6,782	897	84.03	14.94	12.29	13.23	246	265	74	78
1927	83	732	7,821	7,443	1,093	84.60	16.11	13.98	14.68	280	294	89	76
1928	82	646	7,111	6,880	1,061	85.52	16.73	14.92	15.42	298	308	64	75
1929	78	694	7,366	7,117	1,018	84.46	15.64	13.74	14.22	275	284	111	48
1930	77	783	9,262	8,789	1,208	83.79	15.22	13.00	13.70	260	274	150	60
1931	66	714	7,906	7,659	1,156	84.55	16.18	14.30	14.76	286	295	99	75
1932	75	765	9,080	8,856	1,357	85.17	16.41	14.86	15.23	297	305	116	134
1933	84	985	11,043	10,778	1,642	84.83	16.61	14.86	15.23	297	305	141	134
1934 [7]	75	765	7,480	7,358	1,154	84.85	16.98	15.41	15.66	308	313	130	92

[1] Year shown is that in which beets were grown. Sugar-making campaign extends into succeeding year.
[2] Including, in some years, a small acreage in Canada used by United States factories.
[3] Includes a small quantity not made from beets, and also that made at the Johnstown, Colo., molasses factory.
[4] Percentages of sucrose (pure sugar) in the total soluble solids of the beets.
[5] Based upon weight of beets sliced, except possibly in a very few factories.
[6] Sucrose actually extracted by factories, including that recovered from beet molasses.
[7] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. For earlier years see 1934 Yearbook, table 138.

TABLE 141.—*Sugar: Production in continental United States, Hawaii, Puerto Rico and the Philippine Islands, 1909–10 to 1934–35*

Year beginning July	Total cane and beet (refined) [1]	Beet (chiefly refined)	Cane (chiefly raw)				
			Continental United States [2]	Puerto Rico	Hawaii	Philippine Islands	Tota
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
1909–10	1,791,108	512,469	331,726	346,786	517,090	168,254	1,363,856
1910–11	1,955,539	510,172	355,040	349,840	566,821	268,878	1,540,579
1911–12	2,108,510	599,500	360,874	371,076	595,038	281,354	1,608,342
1912–13	2,057,179	692,556	162,573	398,004	546,524	345,077	1,452,178
1913–14	2,304,454	733,401	300,538	351,666	612,000	408,339	1,672,543
1914–15	2,282,021	722,054	246,620	346,490	646,000	421,192	1,660,302
1915–16	2,404,018	874,220	138,620	483,590	592,763	412,274	1,627,247
1916–17	2,590,239	820,657	310,900	503,081	644,663	425,266	1,883,910
1917–18	2,411,263	765,207	245,840	453,794	576,700	474,745	1,751,079
1918–19	2,399,820	760,950	284,400	406,002	600,312	453,346	1,744,060
1919–20	2,259,514	726,451	122,125	485,071	555,727	466,913	1,629,836
1920–21	2,761,304	1,089,021	176,114	489,818	521,579	589,437	1,776,948
1921–22	2,769,970	1,020,489	327,701	408,325	592,000	533,189	1,861,215
1922–23	2,260,865	675,000	295,735	379,172	537,000	475,325	1,687,232
1923–24	2,604,292	881,000	164,823	447,570	691,000	529,091	1,832,484
1924–25	3,252,954	1,090,000	88,483	660,411	769,000	779,510	2,297,404
1925–26	2,923,225	913,000	139,381	603,240	787,246	607,362	2,137,229
1926–27	3,019,707	897,000	47,166	629,134	811,333	766,902	2,254,535
1927–28	3,468,969	1,093,000	70,792	748,677	896,918	807,814	2,524,201
1928–29	3,463,853	1,061,000	132,053	586,761	899,101	933,954	2,551,869
1929–30	3,804,023	1,018,000	200,000	866,110	912,357	981,371	2,959,838
1930–31	3,950,386	1,208,000	184,000	783,163	988,612	958,032	2,913,807
1931–32	4,339,232	1,156,000	156,617	992,335	1,025,354	1,174,311	3,348,617
1932–33	4,605,219	1,357,000	222,760	816,337	1,035,546	1,342,795	3,417,438
1933–34 [4]	5,290,101	1,642,000	205,000	1,103,822	[3] 952,186	[3] 1,580,443	3,841,451
1934–35 [4]	3,811,087	1,154,000	234,000	784,000	[3] 952,000	[3] 824,000	2,794,000

[1] Cane sugar, raw, converted to refined basis by multiplying by the following factors up to year 1931–32: United States, 0.932; Puerto Rico, 0.9393; Hawaii, 0.9358; Philippine Islands, 0.95; beginning with 1931–32, United States, 0.9418; Puerto Rico, 0.9460; Hawaii, 0.9617; Philippine Islands, 0.9460.
[2] Figures for 1909–10 to 1923–24 include Louisiana and Texas; beginning 1924–25, Louisiana only.
[3] Unofficial. [4] Preliminary.

Bureau of Agricultural Economics; production data compiled from the following sources: United States from the Department of Agriculture, except cane sugar, 1909–10 and 1910–11, which are from Willet & Gray; Hawaii from Hawaiian Sugar Planters' Association; Puerto Rico and Philippines from official sources of those islands.
Figures for earlier years appear in previous issues of the Yearbook.

TABLE 142.—*Cane sugar: Production of Hawaii, 1924–25 to 1932–33*

Year beginning October	Total acreage in cane	Cane used for sugar			Sugar produced		Sugar made per short ton of cane	Recovery of equivalent refined sugar from cane ground [3]
		Acreage harvested	Average yield per acre [1]	Production	As made	Equivalent refined [2]		
	Acres	*Acres*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Pounds*	*Percent*
1924–25	241,000	122,000	51.6	6,297,000	769,000	720,000	244	11.43
1925–26	237,774	122,309	53.1	6,495,686	787,246	736,705	242	11.34
1926–27	234,809	124,542	56.1	6,992,082	811,333	759,245	232	10.86
1927–28	240,769	131,534	58.6	7,707,330	896,918	839,336	233	10.89
1928–29	239,858	129,131	57.7	7,447,494	899,101	841,379	241	11.30
1929–30	242,761	133,840	58.7	7,853,439	912,357	853,784	232	10.87
1930–31	251,533	137,037	61.9	8,485,183	988,612	925,143	233	10.90
1931–32	251,876	139,744	63.4	8,865,323	1,025,354	986,083	231	11.12
1932–33	254,563	144,959	59.1	8,566,781	1,035,548	995,887	242	11.62

[1] The growth of 18 to 22 months.
[2] 1 ton of sugar as made is assumed to be equivalent to 0.9358 ton of refined from 1924–25 to 1930–31 and 0.9617 ton of refined from 1931–32 to 1933–34, as recommended by the joint committee on sugar statistics of the Departments of Commerce and Agriculture.
[3] Based on tonnage of cane used.

Bureau of Agricultural Economics. Estimates of the Crop Reporting Board prior to 1926; since then data collected through the Hawaiian Sugar Planters' Association. For earlier years see 1934 Yearbook, table 140.

TABLE 143.—*Cane sugar: Production in Louisiana, 1925–34*

Year [1]	Factories operating	Cane used for sugar			Sugar produced		Recovery of equivalent refined sugar from cane ground [4]	Sugar made per ton of cane	Molasses made			
		Acreage	Average yield per acre [2]	Production	As made	Equivalent refined [3]			Blackstrap	Total [5]	Per ton of sugar made	Per ton of cane used
	Number	*1,000 acres*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Percent*	*Lb.*	*1,000 gallons*	*1,000 gallons*	*Gallons*	*Gallons*
1925	91	189	14.0	2,644	139	130	4.92	105	12,171	17,783	128	6.7
1926	54	129	6.7	864	47	44	5.09	109	2,745	6,614	141	7.7
1927	46	72	13.4	962	71	66	6.86	148	2,582	6,624	93	6.9
1928	55	115	16.2	1,860	132	123	6.61	142	5,683	13,535	103	7.3
1929	65	155	18.8	2,918	200	186	6.37	137	14,418	19,619	98	6.7
1930	61	150	17.1	2,559	184	171	6.68	144	12,032	16,887	92	6.6
1931	59	148	15.1	2,232	157	148	6.63	141	9,477	14,645	93	6.6
1932	62	186	15.5	2,886	223	210	7.28	155	10,983	16,445	74	5.7
1933	59	172	15.2	2,610	205	193	7.39	157	11,197	16,498	80	6.3
1934 [6]	61	197	15.4	3,028	234	220	7.27	155	----	18,277	78	6.0

[1] Sugar campaign, usually not ended before February following season of growth of cane.
[2] The growth of about 9 months.
[3] 1 ton of sugar as made is assumed to be equivalent to 0.932 ton of refined for 1925–30, and 0.9418 ton of refined for 1931–34, as recommended by the joint committee on sugar statistics of the Departments of Commerce and Agriculture.
[4] Based on tonnage of cane used.
[5] For sirup production see table 150.
[6] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. For earlier years see 1934 Yearbook, table 141.

TABLE 144.—*Sugar: Production, trade, and supply available for consumption in continental United States, 1909–10 to 1934–35*

IN TERMS OF RAW SUGAR

Year beginning July	Production [1]	Brought in from insular possessions [2]	Imports as sugar [3]	Domestic exports as sugar [4]	Exports in other forms [5]	Available for consumption [6]	
						Total	Per capita
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Pounds*
1909–10	882,630	927,752	1,934,754	72,382	24,351	3,648,403	79.7
1910–11	903,475	943,701	1,845,279	36,597	15,966	3,639,891	78.3
1911–12	1,005,337	1,187,663	1,832,424	50,380	15,160	3,959,883	83.9
1912–13	907,070	1,026,972	2,266,426	30,963	19,217	4,150,288	86.6
1913–14	1,088,944	936,376	2,463,252	37,190	11,892	4,439,489	91.3
1914–15	1,022,828	1,098,314	2,529,963	302,641	13,585	4,334,878	87.9
1915–16	1,078,407	1,102,057	2,689,067	882,864	12,213	3,974,453	79.4
1916–17	1,193,107	1,203,938	2,527,984	676,752	29,211	4,219,066	83.2
1917–18	1,068,437	975,684	2,344,816	305,429	46,131	4,037,377	78.5
1918–19	1,102,421	1,073,944	2,799,962	568,566	36,747	4,371,013	83.8
1919–20	903,060	975,735	3,812,955	776,502	98,386	4,816,862	91.1
1920–21	1,346,811	1,076,342	3,228,279	319,589	89,491	5,242,352	97.6
1921–22	1,424,726	1,340,867	3,940,777	1,085,349	31,397	5,589,624	102.5
1922–23	1,021,360	1,235,049	4,068,205	412,196	12,568	5,899,849	106.6
1923–24	1,111,898	1,274,870	3,436,955	152,883	24,617	5,646,223	100.5
1924–25	1,260,000	1,645,319	3,931,282	273,470	22,436	6,540,695	114.7
1925–26	1,121,000	1,981,482	3,895,947	325,804	24,998	6,647,627	114.9
1926–27	1,011,000	1,689,347	3,968,997	124,555	26,303	6,518,486	111.1
1927–28	1,246,000	2,051,659	3,415,830	115,566	29,833	6,568,090	110.4
1928–29	1,273,000	1,974,899	4,115,601	139,324	31,894	7,192,282	119.2
1929–30	1,294,000	2,377,787	2,823,173	87,092	43,320	6,364,548	104.0
1930–31	1,482,000	2,603,735	2,416,398	77,131	33,026	6,391,976	103.4
1931–32	1,400,000	2,811,893	2,321,442	58,973	28,522	6,445,840	103.6
1932–33	1,682,000	3,074,951	1,710,999	44,000	22,437	6,401,513	102.2
1933–34	1,970,000	3,207,651	1,356,330	64,082	19,361	6,450,538	102.3
1934–35	1,475,000						

IN TERMS OF REFINED SUGAR [7]

1921–22	1,325,906	1,260,894	3,686,397	1,009,377	29,182	5,234,638	96.0
1922–23	950,625	1,161,351	3,805,745	383,439	11,682	5,522,600	99.8
1923–24	1,034,615	1,198,777	3,214,883	142,217	22,943	5,283,115	94.0
1924–25	1,172,000	1,547,587	3,674,563	254,391	20,911	6,118,848	107.3
1925–26	1,043,000	1,859,332	3,634,323	303,073	23,298	6,210,284	107.4
1926–27	941,000	1,588,981	3,714,054	115,865	24,514	6,103,656	104.0
1927–28	1,159,000	1,930,732	3,196,443	107,704	27,805	6,150,666	103.3
1928–29	1,184,000	1,858,331	3,851,311	129,846	29,726	6,734,070	111.6
1929–30	1,204,000	2,239,140	2,641,709	81,167	40,375	5,963,307	97.5
1930–31	1,379,000	2,451,611	2,261,187	71,884	30,781	5,989,133	96.9
1931–32	1,304,000	2,675,996	2,186,307	55,541	26,862	6,083,900	97.8
1932–33	1,567,000	2,924,863	1,611,418	41,439	21,131	6,040,711	96.5
1933–34	1,835,000	3,048,957	1,277,392	60,353	18,234	6,082,762	96.5
1934–35	1,374,000						

[1] Beet and cane sugar only.
[2] Duty free, from Hawaii, Puerto Rico, and the Philippine Islands (Virgin Islands included 1917 and subsequently).
[3] No account taken of sugar imported in other forms. Imports from the Philippine Islands excluded, reexports deducted.
[4] Shipments to Hawaii and Puerto Rico included. Direct exports to foreign countries from Hawaii and Puerto Rico excluded.
[5] Sugar used in the manufacture of other commodities for export on which drawback was paid.
[6] No account taken of stocks at the beginning or end of year.
[7] Raw sugar converted to refined by multiplying by the following factors: 1909–10 to 1930–31, Cuba and Hawaii, 0.9358; Puerto Rico, 0.9393; Philippines, 0.95; all others (Santo Domingo, British West Indies, Louisiana, etc.), 0.932. Beginning 1931–32, Hawaii, 0.9617; Puerto Rico, Philippines and Virgin Islands, 0.946; Cuba and all others 0.9418. Use reciprocal of above factors to reduce refined sugar to raw.

Bureau of Agricultural Economics. Trade figures from the Bureau of Foreign and Domestic Commerce.

TABLE 145.—*Sugar: Production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1934–35*

BEET SUGAR IN TERMS OF RAW SUGAR

Country	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	1934–35 [1]
NORTH AMERICA	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Canada	31,908	53,764	60,875	75,008	74,655	78,000
United States	984,600	1,298,600	1,243,000	1,459,000	1,765,000	1,241,000
Total	1,016,508	1,352,364	1,303,875	1,534,008	1,839,655	1,319,000
EUROPE						
England and Wales	24,385	526,062	295,038	410,131	554,450	650,000
Scotland	[2]	1,758	679	844	3,346	
Irish Free State	[2]	28,000	6,471	28,692	38,894	82,000
Sweden	175,564	205,760	158,324	259,425	335,972	298,000
Denmark	142,726	175,656	127,536	199,737	268,700	101,600
Netherlands	324,273	316,200	181,673	253,570	306,466	260,000
Belgium	346,094	306,894	221,113	283,850	267,977	281,000
France	624,498	1,298,371	963,860	1,103,953	1,039,361	1,153,000
Spain	199,414	318,449	397,690	256,805	240,000	320,000
Italy	308,261	474,904	418,121	356,130	335,642	386,000
Switzerland	6,698	6,300	6,724	7,606	9,890	9,400
Germany	1,557,556	2,808,076	1,759,594	1,199,793	1,575,380	1,760,558
Austria	53,192	165,642	179,223	181,791	187,896	248,768
Czechoslovakia	1,178,534	1,257,995	903,142	695,151	568,529	690,477
Hungary	139,801	258,265	138,062	113,955	187,897	240,000
Yugoslavia	63,482	112,067	95,132	93,452	82,085	70,000
Bulgaria	22,044	60,205	28,126	29,505	45,796	2,200
Rumania	76,698	168,220	59,180	66,138	177,700	127,000
Poland	421,338	855,949	543,977	459,575	377,991	473,000
Latvia	[2]	8,322	13,230	30,760	35,695	49,000
Lithuania	[2]	[2]	7,231	17,848	8,910	13,000
Finland	1,407	4,079	4,173	6,369	8,032	10,000
Union of Soviet Socialist Republics	474,700	1,641,876	1,681,000	913,000	1,194,000	1,650,000
Turkey [3]	[2]	38,400	25,108	30,239	74,100	80,000
Total	6,140,665	11,037,450	8,214,407	6,998,319	7,924,709	8,955,003
ASIA						
Japan:						
Hokkaido	9,995	26,583	29,871	29,601	24,960	30,000
Chosen	625	1,109	1,655	[4]	[4]	[4]
Total	10,620	27,692	31,526	29,601		
OCEANIA						
Australia	3,021	5,706	5,878	[5] 6,614	[5] 6,614	[5] 7,716
Total world beet sugar [6]	7,170,814	12,423,212	9,555,686	8,568,542	9,795,938	10,311,719

CANE SUGAR (RAW)

NORTH AND CENTRAL AMERICA AND WEST INDIES						
United States	203,224	183,693	156,617	222,760	205,000	234,000
Hawaii	675,249	988,612	1,025,354	1,035,546	[5] 952,186	[5] 952,000
Puerto Rico	499,751	783,163	992,335	816,337	1,103,822	[5] 784,000
Virgin Islands	5,535	[5] 2,000	[5] 4,577	[5] 4,738	[5] 5,289	[5] 5,600
Central America:						
Guatemala	21,733	[5] 44,628	[5] 39,962	[5] 34,552	[5] 35,840	[5] 28,000
Nicaragua	14,457					
Salvador	21,200	51,210	33,289			
Mexico	179,150	[5] 287,285	[5] 249,708	[5] 231,016	[5] 195,226	[5] 259,041
West Indies (British):						
Antigua	13,340	5,574	21,468	27,076	23,158	20,160
Barbados	56,200	66,690	92,774	107,544	92,886	50,400
Jamaica	39,883	56,174	65,520	62,008	81,231	84,112
St. Christopher	13,985	13,464	22,365	27,065	31,653	28,000
Trinidad	66,483	110,402	109,310	163,828	117,983	89,600
Cuba	4,908,638	3,496,848	2,915,208	2,234,488	2,547,219	2,592,800
Dominican Republic	281,846	394,609	493,325	402,806	428,259	403,200

[1] Preliminary.
[2] No sugar produced.
[3] Includes Turkey in Asia.
[4] The manufacture of beet sugar by the Japan Sugar Co. in Chosen has been discontinued, according to trade reports.
[5] Unofficial estimate.
[6] Exclusive of production in minor producing countries for which no statistics are available.

TABLE 145.—*Sugar: Production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1934–35*—Continued

CANE SUGAR (RAW)—Continued

Country	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	1934–35 [1]
NORTH AND CENTRAL AMERICA AND WEST INDIES—continued	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Haiti	10,158	[5] 21,068	[5] 23,461	[5] 28,338	[5] 28,556	[5] 30,240
West Indies (French):						
Guadeloupe	32,674	20,805	40,785	50,667	36,008	33,600
Martinique	33,573	[5] 42,029	[5] 50,579	[5] 52,455	[5] 49,252	[5] 44,800
Total North and Central American countries and West Indies reporting all years	7,041,422	6,517,044	6,303,348	5,501,224	5,933,568	5,639,553
EUROPE AND ASIA						
Spain	8,738	[5] 25,008	[5] 28,373	[5] 21,683	[5] 17,262	[5] 18,739
India [7]	3,247,800	3,604,000	4,446,000	5,246,080	5,675,040	5,695,000
Taiwan	471,748	878,841	1,090,249	697,088	758,603	1,101,198
Japan	91,569	85,676	122,907	88,668	119,802	122,471
Java [8]	2,113,004	3,095,270	2,514,062	1,544,683	691,738	504,000
Philippine Islands	584,895	958,032	1,174,311	1,342,795	[9] 1,580,443	[9] 824,000
Total European and Asiatic countries reporting all years [10]	5,932,859	7,688,795	8,201,591	7,598,202	7,262,445	7,441,408
SOUTH AMERICA						
Argentina	288,008	420,854	381,914	383,854	348,420	382,812
Brazil	904,456	1,032,787	[5] 1,137,054	[5] 990,997	[5] 721,420	[5] 770,840
British Guiana	112,297	141,280	166,470	159,012	145,600	140,000
Dutch Guiana	12,469	20,744	[5] 22,566	[5] 21,812	[5] 20,160	[5] 22,400
Ecuador	17,603	23,208	27,214	15,970	22,400	21,280
Peru	354,567	470,000	450,644	464,385	468,478	440,920
Venezuela	21,423	[5] 21,999	[5] 22,609	[5] 26,123	[5] 22,400	[5] 22,400
Total South America	1,710,823	2,130,872	2,208,471	2,062,153	1,748,878	1,800,652
AFRICA						
Egypt	100,264	134,260	162,474	187,704	169,784	168,000
Mauritius	243,069	243,564	180,788	272,511	288,207	196,000
Union of South Africa	182,420	393,205	325,899	358,905	391,173	355,000
Mozambique	53,219	[5] 85,421	[5] 79,098	[5] 102,510	[5] 104,720	[5] 100,800
Reunion	52,015	55,572	[5] 47,312	[5] 59,868	[5] 85,351	[5] 71,650
Madagascar	2,168	5,181	7,496	9,370	9,150	9,500
Total African countries reporting all years	633,155	917,203	803,067	990,868	1,048,385	900,950z
OCEANIA						
Australia	411,638	599,899	676,183	595,110	[5] 748,944	[5] 728,000
Fiji	71,984	103,190	89,292	[5] 151,470	[5] 130,047	[5] 125,440
Total Oceania	483,622	703,089	765,475	746,580	878,991	[5] 853,440
Total cane sugar producing countries reporting all years	15,801,881	17,957,003	18,281,952	16,899,027	16,872,267	16,636,003
Estimated world total cane sugar [6]	16,610,000	19,107,000	19,651,000	18,473,000	18,634,000	17,646,000
Total world cane and beet sugar production in countries reporting all years	22,972,695	30,380,215	27,837,638	25,467,569	26,668,205	26,947,722
Estimated world total cane and beet sugar [6]	23,781,000	31,530,000	29,207,000	27,042,000	28,430,000	27,958,000

[1] Preliminary.
[5] Unofficial estimate.
[7] The figures quoted for India are for the production of gur, a low grade of sugar polarizing between 50° and 60°. Practically the entire crop is consumed within the country.
[8] Figures for Java are for the calendar years 1922–35.
[9] Unofficial estimate of production of centrifugal sugar, which usually accounts for about 90 percent of the total sugar production.
[10] Production in the Philippine Islands is not included in this total, as the figures quoted for the last 4 years are not comparable with earlier years.

Bureau of Agricultural Economics; official sources, International Institute of Agriculture and Sugar Associations estimates except as otherwise stated.

Figures are for the crop years 1921–22 to 1934–35 for the countries in which the sugar-harvesting season begins in the fall months and is completed during the following calendar year, except in certain cane-sugar producing countries in the Southern Hemisphere, such as Argentina, Australia, Mauritius, Union of South Africa, etc., where the season begins in May or June and is completed in the same calendar year. Production in these countries is for the calendar years 1921–34.

TABLE 146.—*Sugar, raw, cane and beet: Production, world and selected countries, 1909–10 to 1934–35*

Crop year [1]	Estimated world total	Estimated world total cane	Estimated world total beet	Selected countries							
				United States [2]	Cuba	India [3]	Java [4]	Germany [5]	Czechoslovakia	Poland [6]	France [7]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
1909–10	16,828	9,670	7,158	883	2,021	2,481	1,411	2,147	----------	----------	861
1910–11	18,834	9,870	8,964	903	1,661	2,587	1,617	2,770	----------	----------	763
1911–12	17,908	10,622	7,286	1,005	2,124	2,745	1,550	1,552	----------	----------	546
1912–13	20,542	10,896	9,646	907	2,720	2,862	1,616	2,902	----------	----------	1,029
1913–14	21,154	11,640	9,514	1,089	2,909	2,573	1,549	2,886	----------	----------	841
1914–15	20,875	11,952	8,923	1,023	2,922	2,736	1,454	2,721	----------	376	355
1915–16	18,885	12,278	6,607	1,078	3,398	2,949	1,797	1,678	----------	239	159
1916–17	18,592	13,255	5,337	1,193	3,422	3,093	2,009	1,721	----------	293	217
1917–18	20,293	14,790	5,503	1,068	3,890	3,839	1,960	1,726	----------	263	235
1918–19	18,604	14,076	4,528	1,102	4,491	2,752	1,473	1,297	[8] 714	249	129
1919–20	17,989	14,338	3,651	903	4,184	3,404	1,681	774	553	106	182
1920–21	19,546	14,225	5,321	1,347	4,406	2,825	1,853	1,195	797	195	358
1921–22	20,578	15,095	5,483	1,425	4,517	2,928	1,994	1,434	731	170	326
1922–23	20,860	15,127	5,733	1,022	4,083	3,410	1,981	1,604	811	335	522
1923–24	22,810	16,306	6,504	1,112	4,606	3,715	2,201	1,263	1,115	423	524
1924–25	26,670	17,712	8,958	1,260	5,812	2,852	2,535	1,724	1,574	540	919
1925–26	27,989	18,813	9,176	1,120	5,524	3,334	2,175	1,763	1,662	638	831
1926–27	26,624	18,125	8,499	1,011	5,050	3,659	2,639	1,834	1,153	634	786
1927–28	28,515	18,671	9,844	1,246	4,527	3,603	3,238	1,846	1,383	658	956
1928–29	30,655	20,319	10,336	1,273	5,775	3,035	3,198	2,054	1,165	824	999
1929–30	30,607	20,459	10,148	1,294	5,231	3,092	3,245	2,188	1,142	1,010	1,011
1930–31	31,530	19,107	12,423	1,482	3,497	3,604	3,095	2,808	1,258	856	1,298
1931–32	29,207	19,651	9,556	1,400	2,915	4,446	2,514	1,760	903	544	964
1932–33	27,042	18,473	8,569	1,682	2,234	5,246	1,545	1,200	695	460	1,104
1933–34	28,430	18,634	9,796	1,970	2,547	5,675	692	1,575	569	378	1,039
1934–35 [9]	27,958	17,646	10,312	1,475	2,593	5,695	[10] 504	1,761	690	473	1,153

[1] Figures are for the crop years 1909–10 to 1934–35 for the countries in which the sugar production season begins in the fall months and is completed during the following calendar year, except in certain cane-sugar-producing countries where the season begins in May or June and is completed in the same calendar year. Production in these countries is for the calendar years 1909–34.

[2] Production of cane and beet sugar in terms of raw sugar.

[3] The figures quoted for India are for the production of gur, a low grade of sugar polarizing between 50° and 60°. Practically the entire crop is consumed within the country.

[4] All grades of sugar reduced to terms of head sugar, a grade of sugar which contains at least 96.5 percent sucrose. Figures for Java are for the calendar years 1910–35.

[5] Figures for 1909–10 to 1917–18 are for pre-war boundaries.

[6] Figures are incomplete through 1920–21; 1914–15 includes Prussian Poland only; 1915–16 to 1919–20 include Prussian Poland and Congress Poland; 1920–21 includes Prussian Poland, Congress Poland, and Galicia.

[7] Figures for 1909–10 to 1918–19 refer to pre-war boundaries; 1914–15 to 1918–19 are exclusively of invaded territory.

[8] Bohemia, Moravia, and Silesia only.

[9] Preliminary.

[10] Unofficial estimate.

Bureau of Agricultural Economics. Estimated world total sugar production for the period 1895–96 to 1908–9 in 1924 Yearbook, table 386.

TABLE 147.—*Cane sugar, raw (96° centrifugal): Average wholesale price per pound, New York, 1925–34* [1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average [2]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	4.6	4.6	4.7	4.5	4.3	4.4	4.3	4.4	4.3	3.9	4.0	4.1	4.3
1926	4.2	4.2	4.0	4.1	4.2	4.1	4.2	4.2	4.4	4.6	4.7	5.1	4.3
1927	5.1	4.9	4.8	4.8	4.8	4.6	4.5	4.5	4.8	4.7	4.7	4.6	4.7
1928	4.5	4.3	4.5	4.5	4.5	4.3	4.2	4.1	4.2	3.9	3.9	3.9	4.2
1929	3.8	3.7	3.7	3.7	3.6	3.5	3.8	3.8	4.0	4.0	3.8	3.8	3.8
1930	3.7	3.7	3.6	3.5	3.2	3.2	3.3	3.2	3.1	3.3	3.4	3.3	3.4
1931	3.4	3.3	3.3	3.3	3.2	3.3	3.5	3.5	3.4	3.4	3.4	3.2	3.3
1932	3.1	2.9	2.8	2.6	2.6	2.8	3.0	3.2	3.1	3.2	3.0	2.9	2.9
1933	2.7	2.8	3.0	3.1	3.3	3.4	3.5	3.5	3.6	3.3	3.2	3.2	3.2
1934	3.2	3.3	3.1	2.8	2.8	2.9	3.2	3.3	2.9	2.9	2.9	2.9	2.9

[1] Quotations are on basis of duty paid.

[2] Derived from the figures on which the monthly averages are based.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics reports. Data for 1890–1924 are available in 1924 Yearbook, table 388.

TABLE 148.—*Sugar, granulated: Average retail price per pound, United States, 1925–34* [1]

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	8.1	7.7	7.7	7.5	7.2	7.2	7.1	7.0	7.0	6.8	6.6	6.7	7.2
1926	6.7	6.7	6.7	6.6	6.7	6.9	6.9	7.0	7.0	7.1	7.1	7.3	6.9
1927	7.5	7.5	7.4	7.3	7.3	7.3	7.4	7.3	7.2	7.2	7.2	7.1	7.3
1928	7.1	7.1	7.1	7.1	7.2	7.3	7.3	7.1	7.0	6.9	6.8	6.7	7.1
1929	6.7	6.6	6.5	6.4	6.4	6.4	6.4	6.6	6.7	6.7	6.7	6.6	6.6
1930	6.6	6.5	6.4	6.3	6.3	6.1	6.1	6.1	5.9	5.8	5.9	5.9	6.2
1931	5.9	5.9	5.8	5.7	5.6	5.6	5.6	5.7	5.7	5.6	5.6	5.5	5.7
1932	5.4	5.3	5.2	5.1	4.9	4.9	5.0	5.1	5.1	5.1	5.1	5.1	5.1
1933	5.1	5.0	5.0	5.1	5.3	5.4	5.5	[1] 5.6	5.7	5.7	5.6	5.5	5.4
1934	5.4	5.6	5.4	5.5	5.4	5.4	5.7	5.7	5.7	5.7	5.6	5.5	5.6

[1] Data are averages of prices as reported by retail dealers as of the 15th of month in 51 of the larger cities of the United States. Beginning August 1933, prices are reported twice during the month; those shown are nearest the 15th.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics retail prices.
Data for 1913–24 available in 1930 Yearbook, table 162.

TABLE 149.—*Sugar: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Cuba	5,032,658	525	3,002,821	20	2,890,028	15		
Netherlands Indies	2,380,762	3,634	1,739,182	2,985	1,668,464	2,526	[2] 1,283,018	[2] 55
Czechoslovakia	792,566	628	498,864	235	434,603	20	224,100	9
Philippine Islands	612,260	2,398	829,957	1,601	1,120,563	777	1,188,999	
Dominican Republic	353,915	196	353,239	4	484,731	4	323,955	4
Peru	332,668	106	363,990	200	358,393	208	404,089	
Poland	253,202	2,291	379,977	8,224	204,442	8,286	125,543	30
Mauritius	242,199	[3] 3	197,100	[3] 137	218,129	[3] 6		
Australia [3]	179,533	911	305,667	6	245,073	9,335		
Germany	174,357	92,758	390,677	14,411	89,606	27,507	16,793	17,424
Belgium	152,164	77,890	57,802	54,984	81,679	82,398	150,504	124,358
British Guiana	113,607	447	133,668	52	153,527	66	142,333	50
Union of Soviet Socialist Republics	[3] 105,024	57,858	352,503	78	83,908	45,753	42,315	7,654
Fiji	92,836	171	76,089	190	147,058	195	127,496	166
Hungary	90,488	417	57,756	135	19,124	56	24,384	19
Union of South Africa	82,951	10,307	183,127	2,956	166,813	2,824	201,969	614
Trinidad and Tobago	72,520	1,564	95,336	46	94,936	40	118,891	48
Barbados	61,524	517	38,553		83,675			
Reunion	54,035	26	[3] 57,191	[3] 1	[3] 59,088	[3] 1		
Jamaica	49,676	1,081	49,609	46	43,107	6		
Mozambique	37,906	93	83,310	67	70,202	70		
Brazil	25,076	20	12,240	1	44,602	9	28,089	0
Argentina	23,426	17,264	4,455	3,954	1,553	578	3,486	129
Nicaragua	8,529	408	1,822	682	1,761	75	1,399	47
Madagascar	3,897	3,768	5,751	3,912	7,419	3,104	8,293	2,334
Total	11,327,779	275,281	9,270,686	94,927	8,772,484	183,859	4,415,656	152,941
PRINCIPAL IMPORTING COUNTRIES								
United States [4]	167,360	4,428,566	52,577	3,176,259	49,004	2,971,271	50,496	2,874,127
United Kingdom	105,263	2,135,293	119,068	2,048,880	341,467	2,662,671	380,024	2,295,976
British India	40,084	904,568	38,084	698,310	33,878	469,360	41,447	347,042
China	2,072	823,225	220	716,628	[5] 145	[5] 389,726	193	283,528
Canada	89,914	524,446	8,771	475,765	6,224	434,178	10,183	395,735
France	251,691	460,753	297,863	372,806	312,095	451,432	299,731	437,030
Japan	204,103	414,134	176,146	218,611	97,543	44,400	151,995	146,178
Netherlands	284,204	316,951	36,366	125,990	30,506	159,627	56,469	117,090
Switzerland	74	148,736	523	176,465	724	181,640	1,167	172,359

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.
[4] Includes imports from Virgin Islands of the United States and Philippine Islands, but does not include shipments from Hawaii and Puerto Rico.
[5] Does not include Manchuria after June 30, 1932.

TABLE 149.—*Sugar: International trade, average 1925–29, annual 1931–33*—Continued

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL IMPORTING COUNTRIES—con.	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Chile	133	136,205	80	114,357	29	106,546	----------	123,297
British Malaya	31,068	125,180	12,954	112,358	17,987	109,210	13,498	97,121
Morocco	0	121,576	0	152,888	0	159,438	0	163,638
Austria	663	114,983	147	44,282	293	21,013	279	1,113
Sweden	18	110,608	74	93,104	112	97,676	271	13,010
Irish Free State	0	92,080	0	91,120	0	96,346	0	98,176
Finland	0	87,238	0	77,578	0	64,109	0	81,809
Portugal	102	86,255	4	78,141	5	68,567	----------	----------
Iran [6]	99	82,505	0	47,973	0	49,887	----------	----------
New Zealand	739	81,102	997	85,056	1,155	86,108	1,019	81,646
Norway	0	79,493	0	89,839	0	81,381	0	84,066
Egypt	9,341	79,282	4,087	4,578	1,043	840	36,259	1,262
Italy	4,778	66,744	11,081	14,998	12,241	13,408	8,424	12,783
Greece	[7] 12	64,751	----------	68,680	----------	66,215	----------	60,458
Algeria	151	63,315	106	80,869	[3] 45	78,930	----------	80,277
Ceylon	1	61,046	[3] 0	79,750	[3] 0	57,670	----------	65,563
Siam [8]	1,648	46,472	10	43,114	12	43,938	----------	----------
Uruguay	0	43,221	[3] 0	[3] 51,801	[3] 0	[3] 47,688	----------	----------
Latvia	20	41,655	0	45,526	275	32,307	772	15,890
Denmark	3,148	29,841	192	49,850	234	48,373	194	4,829
Tunis	0	29,742	0	36,810	0	38,893	0	36,422
Lithuania	25	25,731	[3] 269	28,217	[3] 261	16,846	----------	3,510
Anglo-Egyptian Sudan	0	23,812	0	26,298	0	13,922	0	15,545
Taiwan	13,346	18,109	16,488	2	[3] 47,177	[3] 0	----------	----------
Yugoslvala	4,654	6,218	0	1,597	0	1,234	0	99
Gold Coast	0	5,584	0	4,239	0	3,799	0	----------
Total	1,214,711	11,879,420	776,107	9,532,739	952,455	9,168,649	1,052,421	8,109,579

[1] Preliminary.
[6] Year ended Mar. 20 of the following year; beginning 1931, year ended June 21 of following year.
[7] 2-year average.
[8] Year ended Mar. 31 of following year.

Bureau of Agricultural Economics; official sources except where otherwise noted.
The following kinds and grades have been included under the head of sugar: Brown, white, candied, caramel, chanaca (Peru), crystal cube, maple, muscovado, panela. The following have been excluded: "Candy" (meaning confectionery), confectionery, glucose, grape sugar, jaggery, molasses, and sirups.

TABLE 150.—*Sugarcane sirup: Acreage, yield, production, and price per gallon received by producers December 1, by States, averages, and annual 1933 and 1934*

State	Acreage harvested for sirup			Yield per acre			Production			Price Dec. 1	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934
	1,000 acres	*1,000 acres*	*1,000 acres*	*Gal.*	*Gal.*	*Gal.*	*1 000 gal.*	*1,000 gal.*	*1,000 gal.*	*Cents*	*Cents*
South Carolina	5	6	5	91	105	105	531	630	525	65	70
Georgia	28	33	32	138	125	116	3,890	4,125	3,712	50	50
Florida	9	10	10	162	150	165	1,560	1,500	1,650	45	50
Alabama	19	28	32	116	115	132	2,143	3,220	4,224	55	50
Mississippi	15	19	24	132	167	180	2,253	3,173	4,320	45	42
Arkansas	1	1	1	98	135	58	123	135	58	65	75
Louisiana	19	21	27	257	260	259	5,598	5,458	7,001	[2] 34	[2] 37
Texas	7	9	8	115	164	100	976	1,476	800	55	65
United States	103	127	139	154.2	155.3	160.4	17,075	19,717	22,290	46.3	45.4

[1] Preliminary.
[2] Average price for crop-marketing season.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 151.—*Sorgo sirup: Acreage, yield, production, and price per gallon received by producers Dec. 1, by States, averages, and annual 1933 and 1934*

State	Acreage harvested for sirup			Yield per acre			Production			Price Dec. 1	
	Average, 1927–31	1933	1934[1]	Average, 1922–31	1933	1934[1]	Average, 1927–31	1933	1934[1]	1933	1934
	1,000 acres	*1,000 acres*	*1,000 acres*	*Gallons*	*Gallons*	*Gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*Cents*	*Cents*
Indiana	2	2	3	65	65	75	143	130	225	60	60
Illinois	2	2	3	66	58	68	126	116	204	65	65
Iowa	3	2	2	79	75	60	252	150	120	60	75
Missouri	11	12	14	58	47	35	613	564	490	55	70
Kansas	2	4	2	54	43	35	118	172	70	50	65
Virginia	2	5	5	65	63	67	150	315	335	65	65
North Carolina	20	24	22	69	75	75	1,355	1,800	1,650	55	60
South Carolina	7	8	7	54	52	53	376	416	371	50	55
Georgia	13	17	16	64	64	64	854	1,088	1,024	48	49
Kentucky	13	14	14	61	62	66	748	868	924	49	50
Tennessee	21	21	21	60	60	55	1,258	1,260	1,155	48	50
Alabama	30	48	50	66	68	75	2,111	3,264	3,750	45	45
Mississippi	18	23	24	77	75	81	1,421	1,725	1,944	38	40
Arkansas	14	17	16	56	56	38	796	952	608	49	60
Oklahoma	5	3	3	47	55	20	254	165	60	46	65
Texas	19	38	26	56	52	33	1,108	1,976	858	46	55
United States	182	240	228	62.6	62.3	60.5	11,683	14,961	13,788	47.9	51.1

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 152.—*Maple sugar and sirup: Production and average price received by producers, United States, 1917–34*

Year	Trees tapped	Sugar made	Sirup made	Total product in terms of sugar[1]	Average total product per tree		Price per pound of sugar	Price per gallon of sirup
					As sugar[1]	As sirup[1]		
	1,000 trees	*1,000 pounds*	*1,000 gallons*	*1,000 pounds*	*Pounds*	*Gallons*	*Cents*	*Dollars*
1917	17,313	10,525	4,258	44,589	2.58	0.32		
1918	19,132	12,944	4,863	51,848	2.71	.34		
1919	16,639	9,541	3,262	35,637	2.14	.27		
1920	16,672	6,928	3,131	31,976	1.92	.24		
1921	14,160	4,699	2,149	21,891	1.55	.19		
1922	15,198	5,227	3,370	32,187	2.12	.26		
1923	14,178	4,656	3,262	30,752	2.17	.27		
1924	14,193	4,096	3,574	32,688	2.30	.29	26.0	2.00
1925	14,070	3,238	2,817	25,774	1.83	.23	26.9	2.08
1926	13,948	3,585	3,504	31,617	2.27	.28	29.3	2.12
1927	13,751	3,183	3,429	30,615	2.23	.28	28.7	2.05
1928	13,489	2,189	2,782	24,445	1.81	.23	28.6	2.02
1929	12,858	1,362	2,361	20,250	1.58	.20	30.0	2.03
1930	13,062	2,370	3,641	31,498	2.41	.30	30.1	2.03
1931	12,138	1,646	2,213	19,350	1.59	.20	25.7	1.72
1932	12,091	1,623	2,412	20,919	1.73	.22	24.5	1.51
1933	12,076	1,288	2,186	18,776	1.55	.19	20.8	1.18
1934[2]	12,158	1,271	2,395	20,431	1.70	.21	24.7	1.33

[1] 1 gallon of sirup taken as equivalent to 8 pounds of sugar.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised 1919–28. See introductory text.

TABLE 153.—*Honey: Monthly average price in specified locations, 1928–34*

EXTRACTED HONEY, PER POUND

Item, location, and year	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
California White to Water White Orange: F.o.b. southern California shipping points: [1]	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1928	10	10	10	9½	8¾	8¾	9	9¼	9¼	9½	9¾	9½
1929	9¾	9¾	9½	9½	10	10¼	11	11¼	11	11	12	
1930	12¾	12½	13½	10½	8¼	8	7½	7½	7¼	7½	7½	7¾
1931	7¼	7⅛	7¼	6⅜	6½	6¼	6¼	6⅜	6¼	6½	6⅜	6½
1932	6	6	5⅝	4⅞	4½	4½	4¼	4⅜	4⅜	5⅛	5⅜	5⅞
1933	6⅜	6⅜	6¼	6¼	5½	5	4⅞	5½	5⅜	5⅜	5¼	5¼
1934	5¼	4⅞	5	4⅞	4⅞	5⅛	5½	5⅝	5¾	6	6¼	6¼
New York City: [2]												
1928					12½	12½	12½	12½	12¾	13	12¾	12½
1929	12½	12½	12½	12½	12½	12½	12½	12¾	13	13½	13½	13½
1930	13½	13½	13½	13½		12¼	12¼	12⅜	12⅝	12½	12¼	12
1931	11¾	11½	11¼	11	11	10½	10½	10½	11	11	10¼	10⅜
1932	9½	9½	9½	9½	9½	9½	9½	8¾	8⅜	8¾	9	8¾
1933	9¼	9¼	9¼	8⅝	8½	8½	8½	8½	8½	8¾	8¾	8¾
1934	8⅝	8¾	8¾	8¾	8¾	8⅞	9¼	8¾	8¾	9	8¾	8⅞
Intermountain White to Water White Sweet Clover and Alfalfa: F. o. b. intermountain points: [3]												
1928	7¼	7½	7¼	7¼	7¼	7	7¼	7	7¼	7¼	7	7
1929	7⅛	7⅛	7⅜	7⅜	7¾	7½	7	7⅜	7¼	7⅛	7¼	7⅛
1930	7¼	7¼	7	6⅞	6½	5¾	6¼	6½	5¾	5½	5⅜	5¾
1931	5¼	5½	5½	5⅛	4⅞	4⅝	5⅛	5⅛	5⅛	5	5⅛	4⅞
1932	4¾	5	5	4¾	5	4⅞	4¾	3¾	3¾	3¾	3¾	3⅝
1933	3⅝	3¾	3⅞	3¾	3⅞	3⅞	4	4½	4¾	4⅞	4¾	4⅝
1934	4⅝	4⅝	4¾	5	5	5⅛		5¼	5½	5½	5⅝	5⅝
White Clover: F. o. b. New York and North Central States: [4]												
1928	8½	8¼	8	8	8	8½	9¼	9	8¾	8½	9	8½
1929	8¾	8¾	9	9¼	8¾	9	9½	8¾	8½	8¼	8¼	8
1930	8¼	8¼	8¼	8¼	8⅛	7¾	7¾	8	7¾	7¼	7⅜	7½
1931	7⅜	6⅞	6¾	6¾	6¾	6⅞	6¾	6¾	6⅝	7	6⅝	6⅜
1932	6½	6¼	6¼	5⅞	6	5¾	6	5⅜	5½	5¼	5	4⅞
1933	5	5	4¾	5	5	5	5	5½	6	6⅛	6⅛	6
1934	6¼	6¼	6½	6½	6⅞	6½	7	6¾	7	6¾	6⅞	6⅞
Northeastern Buckwheat: F. o. b. New York and Pennsylvania points: [4]												
1928	7¼	7¼	7¼	6¾				8	7¾	7½	7½	7¼
1929	7¾	7½	7	7¼	7½	7½		8½	7⅛	8	7⅝	7¼
1930	7¾	6½	6¾	7⅜		7		8	6½	6½	5½	6
1931		5¾	5⅝	5¾			5½		5	5	5	5
1932	5¼	4⅝	4¾	4½	4¾			4⅜	4½	4⅜		4
1933	3⅞	4	3⅞	3⅞	4⅛	4¼	3⅞		4¾	4¼	4¾	5⅛
1934	4¾	5⅛	5⅛	5¼	5			5½	5¾	5⅞	5½	5⅝

COMB HONEY, 24-SECTION CASES

White Clover comb, No. 1 and Fancy wrapped: F. o. b. New York and North Central States: [4]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.
1928	4.80	4.80	4.50	4.80	4.50	4.25	4.50	4.50	4.50	4.50	4.80	4.50
1929	4.80	4.50	4.25	4.25	4.50	4.25	4.50	4.50	4.25	4.00	4.00	4.00
1930	4.25	4.00	4.00	4.00	4.25	4.00	4.00	4.25	4.25	4.00	4.00	3.75
1931	3.80	3.75	3.60	3.40	3.25	3.50	3.50	3.60	3.75	3.50	3.50	3.40
1932	3.30	3.25	3.35	3.25	3.30	3.35	3.50	3.15	2.85	2.65	2.70	2.60
1933	2.40	2.40	2.30	2.50	2.40	2.50	2.40	2.65	3.00	3.00	3.00	2.90
1934	2.80	2.80	3.00	3.10	3.10	3.25	3.15	3.20	3.00	3.00	3.00	3.30

[1] Price to beekeepers or other shippers in large lots, mostly less than car lots.
[2] Sales by original receivers to bottlers, confectioners, bakers, and jobbers.
[3] Price to beekeepers and other shippers, in car lots.
[4] Price to beekeepers in large lots, mostly less than car lots.

Bureau of Agricultural Economics.

TABLE 154.—*Maple sugar and sirup: Production, by States, average 1927–31, and annual 1933 and 1934*

State	Trees tapped			Sugar made			Sirup made		
	Average, 1927–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]
	1,000 trees	*1,000 trees*	*1,000 trees*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*
Maine	254	255	260	19	[2] 10	[2] 15	37	29	29
New Hampshire	402	388	380	145	46	59	77	50	71
Vermont	5,552	5,290	5,449	1,108	554	678	1,098	625	971
Massachusetts	269	236	236	89	66	105	62	36	65
New York	3,602	3,184	3,216	503	388	284	806	597	668
Pennsylvania	838	664	657	142	108	83	225	209	199
Ohio	1,301	1,216	1,216	50	32	5	367	413	273
Michigan	515	490	436	54	35	13	118	140	72
Wisconsin	263	295	251	10	24	11	70	62	30
Maryland	63	58	57	29	25	18	25	25	17
United States	13,060	12,076	12,158	2,150	1,288	1,271	2,885	2,186	2,395

[1] Preliminary.
[2] Not including approximately 200,000 lbs. of sugar produced in Somerset County, not on farms.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 155.—*Tobacco, unmanufactured: Acreage, production, value, and foreign trade, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Price per pound received by producers, Dec. 1 [1]	Farm value, basis Dec. 1 price	Foreign-trade year beginning July		
						Domestic exports [2]	Imports [2]	Net exports [2 3]
	Acres	*Pounds*	*1,000 pounds*	*Cents*	*1,000 dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1919	*1,861,480*	*736.8*	*1,371,504*					
1919	1,958,500	737.4	1,444,206	31.2	451,171	648,038	94,005	570,858
1920	1,934,800	780.0	1,509,212	17.3	260,350	506,526	58,923	456,477
1921	1,339,500	750.2	1,004,928	19.5	196,113	463,389	65,225	403,492
1922	1,616,200	776.1	1,254,304	22.8	286,417	454,364	75,786	384,223
1923	1,855,000	818.1	1,517,583	19.0	288,102	597,630	54,497	548,287
1924	*1,537,843*	*719.4*	*1,106,340*					
1924	1,702,300	731.3	1,244,928	19.0	236,937	430,702	76,870	355,739
1925	1,750,700	786.0	1,376,008	16.8	230,642	537,240	69,974	468,958
1926	1,628,400	791.7	1,289,272	17.9	231,208	516,402	92,983	424,651
1927	1,555,900	778.5	1,211,311	20.7	250,462	489,996	81,045	411,366
1928	1,864,400	736.5	1,373,214	20.0	274,136	565,925	79,284	489,149
1929	*1,888,365*	*771.3*	*1,456,510*					
1929	1,987,600	773.5	1,537,313	18.4	282,168	600,181	63,181	541,312
1930	2,111,600	780.2	1,647,377	12.8	211,156	591,035	75,425	517,388
1931	2,000,000	791.8	1,583,567	8.2	129,689	432,361	73,375	359,374
1932	1,411,200	727.1	1,026,091	10.5	107,821	399,967	59,545	341,455
1933	1,756,600	784.3	1,377,639	13.0	179,486	472,630	55,700	416,930
1934 [4]	1,335,200	820.6	1,095,662	22.0	240,937			

[1] Beginning with 1919 prices are average prices for crop-marketing season.
[2] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues 1919–26 January and June issues, 1927–34, and official records of the Bureau of Foreign and Domestic Commerce.
[3] Total exports (domestic exports plus foreign) minus imports. Beginning 1933–34, domestic exports minus imports for consumption. (See introductory text.)
[4] Preliminary.

Bureau of Agricultural Economics.
Italic figures are census returns; other acreage, yield, and production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text.

TABLE 156.—*Tobacco: Acreage, yield, production, and average price per pound received by producers, by class and type, 1933 and 1934*

Class and type	Type no.	Acreage harvested		Yield per acre		Production		Price for crop of 1933
		1933	1934 [1]	1933	1934 [1]	1933	1934 [1]	
		Acres	*Acres*	*Lb.*	*Lb.*	*1,000 lb.*	*1,000 lb.*	*Cents*
Flue-cured:								
Old Belt	11	332,400	265,000	714	748	237,237	198,350	16.6
Eastern North Carolina Belt	12	360,000	270,000	810	855	291,600	230,850	16.4
South Carolina Belt	13	171,800	120,400	862	832	148,092	100,192	12.8
Georgia-Florida Belt	14	70,800	55,400	871	634	61,654	35,128	11.3
Total	11–14	935,000	710,800	790	794	738,583	564,520	15.3
Fire-cured:								
Virginia	21	32,800	25,600	760	900	24,928	23,040	6.8
Clarksville and Hopkinsville	22	97,000	88,300	805	839	78,105	74,060	10.5
Paducah	23	34,300	32,600	643	856	22,050	27,916	6.8
Henderson Stemming	24	4,000	4,700	740	825	2,960	3,878	6.5
Total	21–24	168,100	151,200	762	852	128,043	128,894	9.1
Air-cured (light):								
Burley	31	508,700	348,100	754	813	383,342	282,999	10.6
Southern Maryland	32	34,000	32,300	600	725	20,400	23,418	17.5
Total	31–32	542,700	380,400	744	806	403,742	306,417	10.9
Air-cured (dark):								
One Sucker	35	23,000	19,100	783	849	18,006	16,215	6.7
Green River	36	16,000	16,800	740	865	11,840	14,532	7.9
Virginia sun-cured	37	2,800	4,200	720	850	2,016	3,570	8.5
Total	35–37	41,800	40,100	762	856	31,862	34,317	7.3
Cigar-filler:								
Pennsylvania seed leaf	41	21,000	15,000	1,000	1,150	21,000	17,250	5.5
Miami Valley	42–44	14,000	13,600	726	925	10,165	12,580	6.0
Georgia and Florida sun-grown	45	100	300	820	1,200	82	360	11.0
Total	41–45	35,100	28,900	890	1,045	31,247	30,190	5.7
Cigar binder:								
Connecticut Valley broadleaf	51	7,200	5,100	1,490	1,600	10,731	8,160	12.5
Connecticut Valley Havana seed	52	6,700	3,300	1,471	1,572	9,854	5,186	9.7
New York and Pennsylvania Havana seed	53	700	500	1,157	1,198	810	599	4.0
Southern Wisconsin	54	8,400	4,700	1,290	1,370	10,836	6,439	5.5
Northern Wisconsin	55	4,500	2,900	1,213	1,273	5,457	3,692	4.8
Total	51–55	27,500	16,500	1,370	1,459	37,688	24,076	8.5
Cigar wrapper:								
Connecticut Valley shade grown	61	4,600	4,900	1,075	1,075	4,946	5,268	64.0
Georgia and Florida shade grown	62	1,300	2,000	931	890	1,210	1,780	32.0
Total	61–62	5,900	6,900	1,043	1,021	6,156	7,048	57.7
Miscellaneous types:								
Eastern Ohio	-------	200	100	950	950	190	95	4.7
Louisiana Perique	-------	300	300	425	350	128	105	20.0
Total	-------	500	400	636	500	318	200	11.0
United States	All	1,756,600	1,335,200	784.3	820.6	1,377,639	1,095,662	13.0

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 157.—*Tobacco: Acreage, yield, production, and average price per pound received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	Acres	*Acres*	*Acres*	*Lb.*	*Lb.*	*Lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*Cents*	*Cents*
Massachusetts	8,060	4,900	3,000	1,329	1,419	1,446	10,769	6,953	4,338	16.5	27.2
Connecticut	23,180	13,600	10,300	1,300	1,366	1,386	29,900	18,578	14,276	23.2	33.9
New York	1,000	400	300	1,139	1,200	1,150	1,156	480	345	4.0	8.5
Pennsylvania	39,140	21,300	15,200	1,286	1,001	1,152	49,463	21,330	17,504	5.5	7.5
Ohio	43,140	33,000	24,000	861	758	897	37,573	25,015	21,527	7.9	12.2
Indiana	15,800	14,700	8,800	847	720	740	12,826	10,585	6,512	8.5	14.5
Wisconsin	37,700	12,600	7,500	1,180	1,272	1,340	46,223	16,023	10,051	5.3	7.7
Minnesota	1,480	300	100	[2] 1,138	900	800	1,759	270	80	4.0	7.0
Missouri	5,340	9,000	6,100	962	915	600	5,185	8,235	3,660	10.8	15.0
Kansas		600	600		810	600		486	360	10.8	15.0
Maryland	33,840	34,000	32,300	749	600	725	23,638	20,400	23,418	17.5	18.0
Virginia	175,000	132,000	113,000	668	735	823	114,122	97,046	92,970	12.8	24.0
West Virginia	5,940	6,700	3,000	758	645	680	4,248	4,322	2,040	10.8	15.0
North Carolina	710,600	687,000	514,000	688	784	815	506,763	538,859	418,802	16.0	29.2
South Carolina	117,000	103,000	72,000	700	860	800	83,820	88,580	57,600	12.6	21.6
Georgia	97,600	66,000	51,000	766	881	632	79,410	58,124	32,234	11.4	19.0
Florida	10,100	6,200	6,700	914	778	751	8,751	4,822	5,034	16.1	26.5
Kentucky	447,740	454,000	347,000	802	716	810	347,291	325,155	281,216	10.1	15.7
Tennessee	130,900	157,000	120,000	797	842	863	107,514	132,248	103,590	10.4	15.1
Louisiana	340	300	300	424	425	350	147	128	105	20.0	20.0
United States	1,903,900	1,756,600	1,335,200	776.4	784.3	820.6	1,470,556	1,377,639	1,095,662	13.0	22.0

[1] Preliminary.
[2] 8-year average.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 158.—*Tobacco: Acreage, yield per acre and production in specified countries, 1932–33 to 1934–35* [1]

Country	Acreage			Yield per acre [2]			Production		
	1932–33	1933–34	1934–35 [3]	1932–33	1933–34	1934–35 [3]	1932–33	1933–34	1934–35 [3]
NORTH AMERICA, CENTRAL AMERICA, AND WEST INDIES	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Lbs.*	*Lbs.*	*Lbs.*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canada	54	46		999	976		54,094	44,873	38,120
United States	1,411	1,757	1,335	727	784	821	1,026,091	1,377,639	1,095,662
Mexico	33	31		748	687		24,561	21,502	
Cuba	93	112		329	378		35,190	36,873	
Dominican Republic							[4] 11,574		
Puerto Rico	10	25	46	595	663	549	6,000	16,783	25,000
EUROPE									
Sweden	1	1		2,042	1,724		1,327	1,202	
Belgium	7	7	7	1,955	2,011	2,029	13,688	14,077	14,201
Germany	27	30	30	2,321	2,187		62,223	64,889	
Poland	13	12	10	1,467	1,367	1,465	18,921	15,932	15,283
Union of Soviet Socialist Republics	610	465		558	802		340,015	372,952	
France	41	44		1,633	1,434		67,716	62,675	
Switzerland	1	2	2	1,557	1,575		1,698	2,436	

[1] Acreage and production figures are for the harvesting season. In the Northern Hemisphere, data for 1932–33, for example, are for crops harvested in the summer and fall of 1932; in the Southern Hemisphere they are for crops harvested in the spring of 1933, except in Netherlands India, where the harvest was largely completed in 1932.
[2] Calculated from actual acreage and production, except in instances where rounded figures only were available.
[3] Preliminary.
[4] Unofficial.

TABLE 158.—*Tobacco: Acreage, yield per acre and production in specified countries, 1932–33 to 1934–35* [1]—Continued

Country	Acreage			Yield per acre [2]			Production		
	1932–33	1933–34	1934–35 [3]	1932–33	1933–34	1934–35 [3]	1932–33	1933–34	1934–35 [3]
EUROPE—continued	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Lbs.*	*Lbs.*	*Lbs.*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Czechoslovakia	25	25	25	1,523	1,038	1,283	37,623	25,957	32,079
Hungary	61	45	40	1,437	1,169	1,154	87,073	52,583	46,155
Rumania	25	25	25	616	555	------	15,609	13,844	------
Spain	10	12	------	1,622	1,194	------	16,605	14,330	------
Italy	99	88	88	1,028	1,112	1,032	101,632	97,842	90,831
Yugoslavia	44	22	23	857	776	865	37,934	17,013	19,841
Bulgaria	50	67	49	763	805	671	38,256	53,915	32,872
Greece	157	192	185	412	631	501	64,497	120,985	92,594
ASIA									
Turkey	64	116	127	626	673	611	39,771	77,970	77,926
Syria and Lebanon	12	17	10	472	395	722	5,790	6,712	7,216
Palestine	3	------	------	412	------	------	1,260	------	------
India	1,212	------	------	[5] 1,131	------	------	[5] 1,361,920	------	------
Ceylon	14	------	------	------	------	------	------	------	------
Indo-China	37	37	------	839	799	------	30,704	29,652	------
Japan	84	84	85	1,599	1,746	1,753	133,611	146,696	148,989
Chosen (Korea)	33	33	------	1,313	1,065	------	43,897	35,635	------
Taiwan (Formosa)	2	------	------	1,577	------	------	2,821	------	------
Philippine Islands	193	184	------	515	499	------	99,529	92,043	------
Java and Madura [6]	68	67	------	875	644	------	59,339	42,965	------
Sumatra [6]	42	29	------	725	1,008	------	30,559	28,812	------
SOUTH AMERICA									
Brazil	------	------	------	------	------	------	[7] 170,453	------	------
Chile	5	------	------	1,648	------	------	8,746	------	------
Argentina	35	20	------	929	951	------	32,959	18,903	------
Uruguay	1	1	------	1,180	710	------	1,511	795	------
AFRICA									
Algeria	59	42	47	685	690	751	40,663	28,849	35,274
Tunis	1	1	------	1,052	1,139	------	1,362	1,125	------
Nyasaland [6]	8	------	------	444	------	------	3,488	------	------
Northern Rhodesia [6]	2	------	------	------	------	------	------	------	------
Southern Rhodesia [6]	32	43	------	485	626	------	15,675	26,792	------
Union of South Africa [6]	------	------	------	------	------	------	9,300	15,215	------
Madagascar	28	27	------	753	625	------	21,385	16,975	------
OCEANIA									
Australia	26	------	------	370	------	------	9,723	2,652	------
New Zealand	2	------	------	840	------	------	1,785	------	------
Total, all countries reporting acreage and production all years	2,096	2,499	2,077	------	------	------	1,651,550	2,052,953	1,733,923
Estimated world total [8]	------	------	------	------	------	------	4,509,000	------	------

See footnotes 1 to 3 on page 453.

[5] Exclusive of North-West Frontier Province.

[6] Data for European plantations only. In Nyasaland the native production for 1932–33 was 9,132,480 pounds; in the Union of South Africa production on native locations and reserves is estimated at 1,000,000 pounds annually.

[7] 1931–32.

[8] Exclusive of China. An official estimate of the "average" annual production in 25 of the 28 Provinces, issued in 1932, was 465,000,000 pounds. The production of flue-cured tobacco was estimated at 144,000,000 pounds in 1933–34 and 140,000,000 pounds in 1934–35.

Bureau of Agricultural Economics; compiled from official sources, International Institute of Agriculture, and reports of United States consuls, commercial attachés, agricultural attachés, and commodity specialists in foreign countries, except as otherwise stated.

TABLE 159.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance, and price in continental United States, 1919–34* [1]

FLUE-CURED, TYPES 11–14 [2]

Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*		*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*
1919	476.9	382.6	859.5	504.1	44.4	1927	718.8	543.3	1,262.1	598.9	20.5
1920	616.0	355.4	971.4	409.1	21.5	1928	739.1	663.2	1,402.3	707.9	17.3
1921	358.8	562.3	921.1	403.7	21.9	1929	749.8	694.4	1,444.2	735.2	18.0
1922	415.4	517.4	932.8	421.0	27.2	1930	864.3	709.0	1,573.3	772.4	12.0
1923	580.7	511.8	1,092.5	542.5	20.8	1931	669.9	800.9	1,470.8	596.9	8.4
1924	437.3	550.0	987.3	456.7	21.6	1932	376.8	873.9	1,250.7	569.5	11.5
1925	575.1	530.6	1,105.7	577.8	20.0	1933	738.6	681.2	1,419.8	650.7	15.3
1926	560.1	527.9	1,088.0	544.7	24.9	1934	564.5	769.1	1,333.6		

VIRGINIA FIRE-CURED, TYPE 21

1919	29.8	42.2	72.0	34.1	24.0	1927	26.6	67.8	94.4	35.2	9.9
1920	45.7	37.9	83.6	41.2	9.1	1928	21.9	59.2	81.1	43.4	10.6
1921	24.7	42.4	67.1	37.0	18.8	1929	22.8	37.7	60.5	26.8	16.9
1922	49.1	30.1	79.2	46.4	19.8	1930	23.3	33.7	57.0	22.5	8.3
1923	43.7	32.8	76.5	35.1	18.1	1931	28.3	34.5	62.8	23.8	4.7
1924	43.2	41.4	84.6	32.7	19.4	1932	13.5	39.0	52.5	20.0	8.0
1925	42.1	51.9	94.0	33.8	16.2	1933	24.9	32.5	57.4	23.9	6.8
1926	43.8	60.2	104.0	36.2	7.8	1934	23.0	33.5	56.5		

KENTUCKY AND TENNESSEE FIRE-CURED, TYPES 22 AND 23

1919	238.0	153.9	391.9	196.7	[4] 19.1	[5] 15.1	1924	156.5	155.4	311.9	148.2	[4] 16.1	[5] 10.8
1920	182.4	195.2	377.6	208.5	[4] 11.7	[5] 9.1	1925	154.7	163.7	318.4	135.2	[4] 9.9	[5] 6.9
1921	137.4	169.1	306.5	165.5	[4] 18.6	[5] 14.2	1926	135.1	183.2	318.3	143.0	[4] 8.6	[5] 6.1
1922	186.9	141.0	327.9	175.3	[4] 16.4	[5] 13.2	1927	82.7	175.3	258.0	134.4	[4] 18.4	[5] 12.2
1923	203.2	152.6	355.8	200.4	[4] 12.2	[5] 10.8	1928	108.6	123.6	232.2	119.6	[4] 15.8	[5] 12.6

KENTUCKY AND TENNESSEE FIRE-CURED, TYPE 22

1929	107.6	89.9	197.5	102.8	14.2	1932	78.5	129.1	207.6	57.9	6.6
1930	96.0	94.7	190.7	79.9	9.9	1933	78.1	149.7	227.8	92.7	10.5
1931	103.7	110.8	214.5	85.4	5.8	1934	74.1	135.1	209.2		

KENTUCKY AND TENNESSEE FIRE-CURED, TYPE 23

1929	47.4	22.7	70.1	48.9	10.0	1932	29.5	42.3	71.8	42.6	4.6
1930	38.0	21.2	59.2	29.5	5.6	1933	22.0	29.2	51.2	17.8	6.8
1931	48.9	29.7	78.6	36.3	4.0	1934	27.9	33.4	61.3		

HENDERSON FIRE-CURED, TYPE 24

1919	19.5	10.2	29.7	13.1	16.0	1927	4.2	8.9	13.1	7.5	9.7
1920	12.5	16.6	29.1	19.2	10.0	1928	6.0	5.6	11.6	10.8	13.9
1921	8.3	9.9	18.2	13.5	15.0	1929	9.5	.8	10.3	9.4	9.5
1922	14.1	4.7	18.8	15.2	15.0	1930	8.9	.9	9.8	5.9	6.9
1923	14.5	3.6	18.1	13.5	12.0	1931	7.2	3.9	11.1	6.1	4.0
1924	14.2	4.6	18.8	11.8	12.0	1932	3.9	5.0	8.9	4.2	3.4
1925	14.0	7.0	21.0	12.1	7.3	1933	3.0	4.7	7.7	2.8	6.5
1926	9.9	8.9	18.8	9.9	7.4	1934	3.9	4.9	8.8		

See footnotes at end of table.

TABLE 159.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance, and price in continental United States, 1919–34* [1]—Continued

BURLEY, TYPE 31

Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*		*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*
1919	300.3	288.2	588.5	257.7	33.2	1927	176.2	537.6	713.8	291.3	25.9
1920	287.7	330.8	618.5	223.2	13.5	1928	269.1	422.5	691.6	288.6	30.5
1921	175.7	395.3	571.0	230.4	21.5	1929	342.2	403.0	745.2	297.1	21.8
1922	276.4	340.6	617.0	208.2	26.8	1930	357.7	448.1	805.8	284.2	15.5
1923	340.4	408.8	749.2	232.5	20.0	1931	435.3	521.6	956.9	259.1	8.7
1924	295.8	516.7	812.5	265.7	20.1	1932	310.4	697.8	1,008.2	271.8	12.5
1925	277.8	546.8	824.6	271.3	18.0	1933	383.3	736.4	1,119.7	281.9	10.6
1926	288.8	553.3	842.1	304.5	13.1	1934	283.0	837.8	1,120.8	------	------

SOUTHERN MARYLAND, TYPE 32 [6]

1919	19.6	22.9	42.5	24.5	26.5	1927	26.2	16.4	42.6	20.8	23.4
1920	27.1	18.0	45.1	29.7	17.8	1928	20.5	21.8	42.3	25.6	27.2
1921	18.6	15.4	34.0	22.1	16.9	1929	24.8	16.7	41.5	23.1	27.7
1922	20.0	11.9	31.9	24.3	23.8	1930	18.7	18.4	37.1	14.4	26.6
1923	21.4	7.6	29.0	16.1	27.7	1931	28.1	22.7	50.8	17.1	15.0
1924	24.5	12.9	37.4	21.1	22.7	1932	27.1	33.7	60.8	20.2	17.0
1925	24.7	16.3	41.0	20.9	23.7	1933	20.4	40.6	61.0	23.4	17.5
1926	26.0	20.1	46.1	29.7	20.2	1934	23.4	37.6	61.0	------	------

ONE SUCKER, TYPE 35

1919	68.7	37.2	105.9	54.5	14.2	1927	13.1	47.4	60.5	30.0	10.6
1920	53.6	51.4	105.0	50.6	7.2	1928	20.0	30.5	50.5	26.3	12.4
1921	28.3	54.4	82.7	41.1	12.2	1929	29.9	24.2	54.1	25.3	10.5
1922	52.2	41.6	93.8	55.3	12.8	1930	29.4	28.8	58.2	21.7	7.0
1923	55.1	38.5	93.6	46.3	9.9	1931	28.7	36.5	65.2	27.2	3.4
1924	39.0	47.3	86.3	38.3	11.2	1932	18.2	38.0	56.2	21.8	4.8
1925	35.5	48.0	83.5	26.9	8.4	1933	18.0	34.4	52.4	16.4	6.7
1926	31.2	56.6	87.8	40.4	6.4	1934	16.2	36.0	52.2	------	------

GREEN RIVER, TYPE 36

1919	60.1	49.3	109.4	51.4	16.0	1927	18.1	57.2	75.3	27.8	9.1
1920	47.5	58.0	105.5	51.8	9.0	1928	18.9	47.5	66.4	30.1	11.5
1921	34.6	53.7	88.3	41.8	15.0	1929	27.4	36.3	63.7	35.8	10.7
1922	57.2	46.5	103.7	41.6	16.0	1930	28.3	27.9	56.2	27.7	8.9
1923	59.0	62.1	121.1	56.3	11.0	1931	41.8	28.5	70.3	27.8	3.3
1924	47.6	64.8	112.4	51.0	11.6	1932	19.9	42.5	62.4	19.7	3.4
1925	51.0	61.4	112.4	50.9	6.9	1933	11.8	42.7	54.5	17.6	7.9
1926	40.0	61.5	101.5	44.3	7.4	1934	14.5	36.9	51.4	------	------

VIRGINIA SUN-CURED, TYPE 37

1919	6.0	10.9	16.9	4.8	28.0	1927	5.5	7.6	13.1	6.6	13.1
1920	9.1	12.1	21.2	9.0	9.2	1928	5.0	6.5	11.5	4.7	10.1
1921	4.0	12.2	16.2	5.6	18.2	1929	4.1	6.8	10.9	6.0	13.2
1922	8.2	10.6	18.8	8.6	14.3	1930	3.4	4.9	8.3	3.8	7.7
1923	6.2	10.2	16.4	8.6	13.2	1931	3.2	4.5	7.7	3.3	5.3
1924	5.6	7.8	13.4	8.1	14.6	1932	1.3	4.4	5.7	1.6	6.1
1925	5.7	5.3	11.0	5.6	16.4	1933	2.0	4.1	6.1	3.5	8.5
1926	7.2	5.4	12.6	5.0	9.4	1934	3.6	2.6	6.2	------	------

PENNSYLVANIA SEED LEAF, TYPE 41 [7]

1919	55.7	106.0	161.7	47.9	18.0	1927	46.6	108.8	155.4	45.9	12.9
1920	62.0	113.8	175.8	68.0	11.8	1928	50.7	109.5	160.2	52.0	13.9
1921	57.9	107.8	165.7	49.1	14.3	1929	50.8	108.2	159.0	55.2	12.0
1922	54.4	116.6	171.0	43.0	15.8	1930	39.4	103.8	143.2	45.6	6.4
1923	54.7	128.0	182.7	40.9	18.0	1931	57.1	97.6	154.7	15.9	7.4
1924	56.8	141.8	198.6	53.9	15.6	1932	45.9	138.8	184.7	57.7	5.2
1925	56.4	144.7	201.1	66.6	10.0	1933	21.0	127.0	148.0	30.8	5.5
1926	43.9	134.5	178.4	69.6	10.3	1934	17.2	117.2	134.4	------	------

See footnotes at end of table.

TABLE 159.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance, and price in continental United States, 1919–34* [1]—Continued

MIAMI VALLEY, TYPES 42–44

Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*		*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*
1919	39.0	88.1	127.1	25.6	20.0	1927	12.2	73.7	85.9	24.1	15.6
1920	38.6	101.5	140.1	40.3	16.0	1928	15.6	61.8	77.4	25.5	17.5
1921	28.2	99.8	128.0	33.9	11.0	1929	20.7	51.9	72.6	25.5	13.8
1922	26.6	94.1	120.7	25.9	14.0	1930	32.3	47.1	79.4	10.3	10.1
1923	25.9	94.8	120.7	26.3	13.0	1931	33.5	69.1	102.6	28.9	5.5
1924	25.2	94.4	119.6	47.7	13.0	1932	21.7	73.7	95.4	25.7	4.0
1925	34.1	71.9	106.0	14.5	11.4	1933	10.2	69.7	79.9	9.2	6.0
1926	21.8	91.5	113.3	39.6	8.5	1934	12.6	70.7	83.3		

GEORGIA AND FLORIDA SUN-GROWN AND SHADE-GROWN, TYPES 45 AND 62

1919	6.0	7.8	13.8	5.3	[8] 20.4	[9] 65.0	1924	4.7	8.5	13.2	6.3	[8] 20.1	[9] 60.0
1920	5.7	8.5	14.2	3.5	[8] 19.0	[9] 60.0	1925	3.4	6.9	10.3	3.9	[8] 20.0	[9] 65.0
1921	5.0	10.7	15.7	5.2	[8] 9.9	[9] 60.0	1926	4.1	6.4	10.5	4.2	[8] 20.0	[9] 65.0
1922	4.8	10.5	15.3	5.9	[8] 12.0	[9] 50.4	1927	5.2	6.3	11.5	2.4	[8] 20.0	[9] 65.0
1923	6.0	9.4	15.4	6.9	[8] 21.0	[9] 58.0	1928	5.5	9.1	14.6	5.7	[8] 20.0	[9] 55.0

GEORGIA AND FLORIDA SUN-GROWN, TYPE 45

1929	1.9	2.9	4.8	1.4	20.0	1932	.2	3.2	3.4	.7	10.0
1930	1.5	3.4	4.9	1.3	20.0	1933	.1	2.7	2.8	.3	11.0
1931	1.1	3.6	4.7	1.5	15.0	1934	.4	2.5	2.9		

CONNECTICUT VALLEY BROADLEAF, TYPE 51

1919	28.2	30.2	58.4	23.8	44.8	1927	17.0	47.3	64.3	24.3	21.0
1920	27.5	34.6	62.1	23.9	39.2	1928	16.1	40.0	56.1	16.5	21.0
1921	28.6	38.2	66.8	25.8	19.9	1929	12.1	39.6	51.7	20.0	27.4
1922	14.8	41.0	55.8	12.8	30.0	1930	18.5	31.7	50.2	11.8	25.1
1923	20.4	43.0	63.4	13.1	35.0	1931	18.8	38.4	57.2	10.5	14.0
1924	22.9	50.3	73.2	17.0	20.0	1932	15.0	46.7	61.7	14.1	11.5
1925	26.5	56.2	82.7	27.9	18.9	1933	10.7	47.6	58.3	12.7	12.5
1926	18.9	54.8	73.7	26.4	26.0	1934	8.2	45.6	53.8		

CONNECTICUT VALLEY HAVANA SEED, TYPE 52 [10]

1919	23.9	29.6	53.5	17.7	31.8	1927	15.8	54.1	69.9	22.6	23.8
1920	21.9	35.8	57.7	25.1	36.4	1928	17.2	47.3	64.5	24.5	24.2
1921	22.6	32.6	55.2	11.0	23.0	1929	18.1	40.0	58.1	16.0	31.1
1922	18.0	44.2	62.2	10.9	29.3	1930	17.9	42.1	60.0	17.2	21.9
1923	24.2	51.3	75.5	18.3	35.4	1931	15.3	42.8	58.1	10.7	13.0
1924	23.1	57.2	80.3	19.2	19.2	1932	18.0	47.4	65.4	20.7	8.5
1925	21.2	61.1	82.3	21.7	16.2	1933	9.9	44.7	54.6	11.3	9.7
1926	16.2	60.6	76.8	22.7	27.2	1934	5.2	43.3	48.5		

NEW YORK AND PENNSYLVANIA HAVANA SEED, TYPE 53 [7]

1919	4.1	2.9	7.0	3.9	22.5	1927	1.9	4.0	5.9	3.1	18.0
1920	3.6	3.1	6.7	2.2	27.0	1928	1.6	2.8	4.4	1.6	19.3
1921	3.7	4.5	8.2	2.5	19.3	1929	1.4	2.8	4.2	1.5	15.4
1922	3.3	5.7	9.0	4.8	25.0	1930	1.5	2.7	4.2	.4	11.7
1923	3.5	4.2	7.7	3.7	21.3	1931	2.1	3.8	5.9	1.0	9.5
1924	3.4	4.0	7.4	1.9	21.9	1932	1.8	4.9	6.7	2.0	3.5
1925	3.2	5.5	8.7	3.0	20.1	1933	.8	4.7	5.5	2.1	4.0
1926	2.5	5.7	8.2	4.2	19.5	1934	.6	3.4	4.0		

WISCONSIN, TYPES 54 AND 55

1919	56.9	91.7	148.6	36.0	[11] 20.0	[12] 26.0	1924	36.4	147.4	183.8	52.7	[11] 9.6	[12] 14.1
1920	58.7	112.6	171.3	46.9	[11] 12.6	[12] 17.2	1925	44.9	131.1	176.0	52.6	[11] 11.6	[12] 13.8
1921	58.9	124.4	183.3	24.0	[11] 6.7	[12] 12.3	1926	33.8	123.4	157.2	45.7	[11] 12.8	[12] 15.4
1922	43.3	159.3	202.6	46.3	[11] 13.0	[12] 14.4	1927	33.9	111.5	145.4	47.5	[11] 14.0	[12] 18.9
1923	47.0	156.3	208.3	55.9	[11] 8.6	[13] 12.1	1928	49.3	97.9	147.2	32.1	[11] 13.7	[13] 15.9

See footnotes at end of table.

TABLE 159.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance, and price in continental United States, 1919–34*[1]—Continued

SOUTHERN WISCONSIN, TYPE 54

Year	Production	Stocks Oct. 1, green weight[3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	Year	Production	Stocks Oct. 1, green weight[3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*		*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*
1929	29.7	68.8	98.5	28.9	13.4	1932	25.0	98.6	123.6	25.6	4.5
1930	31.8	69.6	101.4	19.4	9.8	1933	10.8	98.0	108.8	2.6	5.5
1931	31.0	82.0	113.0	14.4	5.6	1934	6.4	99.2	105.6	-------	-------

NORTHERN WISCONSIN, TYPE 55

1929	20.2	46.3	66.5	21.9	17.3	1932	11.9	61.2	73.1	8.6	3.9
1930	24.0	44.6	68.6	10.8	10.3	1933	5.5	64.5	70.0	14.1	4.8
1931	20.0	57.8	77.8	16.6	5.1	1934	3.7	55.9	59.6	-------	-------

CONNECTICUT VALLEY SHADE-GROWN, TYPE 61

1919	5.8	7.0	12.8	6.4	105.0	1927	6.4	8.0	14.4	6.1	105.0
1920	5.4	6.4	11.8	2.4	100.0	1928	6.9	8.3	15.2	7.3	93.0
1921	7.5	9.4	16.9	7.7	95.0	1929	10.2	7.9	18.1	5.7	56.0
1922	6.8	9.2	16.0	4.9	90.0	1930	7.7	12.4	20.1	6.8	73.0
1923	9.6	11.1	20.7	8.8	100.0	1931	5.3	13.3	18.6	5.3	82.0
1924	7.4	11.9	19.3	6.6	85.0	1932	4.5	13.3	17.8	4.7	59.0
1925	4.8	12.7	17.5	9.7	100.0	1933	4.9	13.1	18.0	7.4	64.0
1926	5.3	7.8	13.1	5.1	97.8	1934	5.3	10.6	15.9	-------	-------

GEORGIA AND FLORIDA SHADE-GROWN, TYPE 62

1929	4.4	6.0	10.4	3.0	55.0	1932	2.4	6.4	8.8	3.0	35.0
1930	3.8	7.4	11.2	4.7	60.0	1933	1.2	5.8	7.0	1.8	32.0
1931	3.1	6.5	9.6	3.2	30.0	1934	1.8	5.2	7.0	-------	-------

MISCELLANEOUS DOMESTIC, TYPE 70[13]

1919	5.8	7.8	13.6	2.9	20.8	1927	1.0	1.2	2.2	1.0	19.2
1920	4.1	10.7	14.8	4.1	18.2	1928	1.2	1.2	2.4	(14)	18.0
1921	1.9	10.7	12.6	4.9	23.6	1929	2.4	2.6	5.0	1.8	9.6
1922	2.6	7.7	10.3	6.4	27.4	1930	.9	3.2	4.1	1.2	13.0
1923	2.2	3.9	6.1	3.3	32.0	1931	1.2	2.9	4.1	1.7	9.7
1924	1.3	2.8	4.1	1.9	24.8	1932	.5	2.4	2.9	.6	12.3
1925	.9	2.2	3.1	1.5	27.9	1933	.3	2.3	2.6	(15)	11.0
1926	.7	1.6	2.3	1.1	16.6	1934	.2	2.6	2.8	-------	-------

[1] Production and price data, 1919–29, revised May 1932.
[2] Stocks as of July 1 and disappearance beginning July 1.
[3] Calculated by converting stemmed to unstemmed and storage weight to green, or farmers' sales weight, by allowing for normal losses of moisture and stem.
[4] Type 22.
[5] Type 23.
[6] Stocks as of Jan. 1 of year following production, and disappearance beginning Jan. 1 of year following production.
[7] Previous to 1929 tobacco stocks reports included Pennsylvania and New York. Pennsylvania is believed to refer entirely to type 41. New York is believed to include type 53 produced both in New York and Pennsylvania.
[8] Type 45.
[9] Type 62.
[10] Includes primed Havana seed, which has not been reported separately since 1929.
[11] Type 54.
[12] Type 55.
[13] Includes Eastern Ohio and Perique. For years 1920-24 Round Tip also included. The stocks for earlier years probably include some other tobacco not reported separately as to type.
[14] Tobacco stock classification changed in 1929, increasing miscellaneous stocks, so that 1928 disappearance cannot be made comparable.
[15] Less than 50,000 pounds.

Bureau of Agricultural Economics; stocks prior to 1929 compiled from reports of the Bureau of the Census.

TABLE 160.—*Tobacco: Stocks in hands of dealers and manufacturers, first of each quarter, 1930–34* [1]

Type and year	Jan. 1	Apr. 1	July 1	Oct. 1
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Flue-cured, types 11, 12, 13, and 14:				
1930	795, 484	707, 149	599, 262	687, 769
1931	868, 983	831, 347	676, 752	739, 356
1932	893, 098	845, 642	795, 207	720, 508
1933	769, 497	680, 280	578, 157	605, 710
1934	858, 124	785, 207	652, 064	758, 709
Virginia fire-cured, type 21:				
1930	34, 997	40, 021	35, 625	27, 917
1931	33, 392	38, 364	33, 241	28, 607
1932	30, 352	40, 711	36, 243	32, 216
1933	31, 369	35, 820	31, 514	26, 906
1934	23, 109	37, 643	32, 230	27, 655
Kentucky and Tennessee fire-cured, type 22 (eastern district):				
1930	79, 385	125, 173	121, 954	87, 589
1931	79, 263	122, 148	121, 372	102, 121
1932	83, 561	115, 379	128, 965	119, 480
1933	113, 210	143, 790	148, 311	138, 565
1934	105, 487	136, 387	136, 532	125, 116
Kentucky and Tennessee fire-cured, type 23 (western district):				
1930	27, 475	33, 450	24, 901	19, 467
1931	21, 288	32, 256	34, 174	27, 228
1932	28, 295	40, 100	48, 014	39, 046
1933	39, 734	54, 444	48, 057	26, 962
1934	39, 797	47, 748	43, 816	30, 896
Henderson fire-cured (stemming), type 24:				
1930	2, 794	5, 089	2, 291	736
1931	3, 788	8, 519	4, 212	3, 102
1932	3, 183	5, 234	5, 186	4, 147
1933	3, 109	8, 335	5, 605	4, 006
1934	3, 591	4, 811	4, 096	4, 164
Burley, type 31:				
1930	352, 803	506, 378	438, 659	373, 032
1931	407, 557	568, 010	500, 042	436, 802
1932	490, 614	702, 834	651, 166	586, 560
1933	619, 690	744, 164	677, 589	615, 930
1934	585, 252	829, 593	764, 143	700, 173
Southern Maryland, type 32:				
1930	15, 304	11, 960	9, 553	17, 167
1931	17, 038	14, 615	11, 756	22, 109
1932	20, 998	19, 559	21, 677	30, 670
1933	31, 325	29, 247	28, 444	40, 488
1934	37, 989	31, 921	29, 597	35, 577
One-sucker, type 35:				
1930	29, 852	38, 218	30, 283	25, 123
1931	29, 180	48, 357	41, 026	32, 324
1932	31, 680	45, 106	37, 495	33, 715
1933	34, 054	40, 941	36, 677	30, 461
1934	27, 384	41, 178	35, 700	31, 893
Green River, type 36:				
1930	30, 824	35, 618	28, 533	23, 786
1931	27, 369	29, 308	26, 136	24, 242
1932	26, 953	38, 957	36, 952	36, 305
1933	33, 791	44, 006	41, 508	36, 574
1934	35, 101	37, 684	35, 725	31, 655
Virginia sun-cured, type 37:				
1930	4, 941	5, 820	4, 935	3, 878
1931	3, 855	4, 709	4, 142	3, 455
1932	3, 174	4, 635	4, 207	3, 358
1933	3, 397	3, 606	3, 228	3, 241
1934	2, 284	4, 467	2, 496	2, 026
Pennsylvania seed-leaf, type 41:				
1930	73, 186	93, 795	90, 292	79, 592
1931	68, 790	80, 387	83, 011	74, 200
1932	66, 310	115, 064	114, 702	107, 683
1933	98, 777	99, 956	99, 048	99, 312
1934	91, 672	96, 162	97, 084	91, 695
Ohio cigar leaf (Miami Valley), types 42, 43, and 44:				
1930	34, 502	41, 448	42, 282	36, 427
1931	30, 502	54, 389	58, 455	54, 186
1932	48, 572	55, 605	61, 424	57, 762
1933	56, 339	57, 463	57, 326	54, 623
1934	54, 291	55, 477	56, 727	55, 324
Georgia and Florida sun-grown, type 45:				
1930	1, 538	1, 319	1, 340	2, 345
1931	2, 033	2, 223	1, 530	2, 419
1932	2, 097	2, 188	2, 277	2, 025
1933	2, 063	1, 938	1, 839	1, 722
1934	1, 503	1, 352	1, 135	1, 620
Puerto Rico cigar leaf, type 46:				
1930	29, 039	28, 442	24, 734	23, 510
1931	27, 284	27, 932	24, 940	23, 546
1932	26, 415	25, 647	23, 470	20, 336
1933	19, 668	19, 318	18, 732	17, 831
1934	20, 487	21, 162	19, 490	18, 499
Conn. Valley Broadleaf, type 51:				
1930	29, 507	30, 072	28, 960	24, 809
1931	23, 438	30, 758	33, 377	29, 969
1932	29, 501	36, 505	36, 783	36, 647
1933	35, 099	35, 667	38, 961	37, 450
1934	35, 238	37, 384	39, 126	35, 740
Conn. Valley Havana seed, type 52:				
1930	33, 487	43, 468	35, 732	32, 898
1931	32, 739	42, 176	38, 265	33, 442
1932	33, 849	41, 753	40, 854	37, 092
1933	35, 818	38, 643	38, 329	35, 048
1934	34, 486	35, 651	36, 254	34, 011
New York Havana seed, type 53:				
1930	2, 395	2, 811	2, 533	2, 166
1931	2, 837	3, 558	3, 644	3, 034
1932	2, 864	4, 455	4, 370	3, 881
1933	3, 335	3, 255	3, 932	3, 761
1934	4, 136	3, 382	3, 102	2, 704
Wisconsin cigar leaf, types 54 and 55:				
1930	72, 614	101, 420	97, 023	85, 274
1931	73, 291	97, 515	112, 555	105, 169
1932	95, 964	114, 686	128, 423	121, 273
1933	115, 587	117, 557	127, 225	124, 192
1934	120, 319	119, 506	121, 738	118, 649
Conn. Valley shade grown, type 61:				
1930	11, 329	10, 499	10, 207	10, 162
1931	11, 771	10, 818	10, 255	10, 863
1932	10, 908	11, 504	10, 720	10, 902
1933	11, 300	10, 865	10, 452	10, 730
1934	10, 821	10, 238	9, 576	8, 685
Georgia and Florida shade, type 62:				
1930	5, 048	4, 950	3, 968	5, 921
1931	5, 165	4, 428	4, 110	5, 197
1932	4, 825	4, 407	3, 616	5, 162
1933	4, 799	4, 218	3, 923	4, 634
1934	3, 958	3, 439	3, 039	4, 150
Miscellaneous domestic type 70:				
1930	1, 989	4, 105	2, 932	2, 918
1931	2, 723	2, 973	2, 843	2, 573
1932	2, 864	2, 927	2, 551	2, 182
1933	2, 262	2, 095	2, 043	2, 065
1934	2, 184	2, 339	1, 996	2, 259

[1] Storage order basis, including some tobacco which has been stemmed.

Bureau of Agricultural Economics.

TABLE 161.—*Tobacco:*[1] *Exports from the United States to principal importing countries, 1925–34*

FLUE-CURED, TYPES 11, 12, 13, AND 14

Importing countries	Calendar year									
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	131,034	125,964	166,655	162,329	199,632	180,380	145,309	11,899	165,717	175,372
China	78,824	82,669	45,386	159,664	99,455	108,913	148,634	68,565	69,340	53,458
Australia	19,638	20,843	17,247	20,050	18,488	26,248	14,924	11,938	5,813	13,902
Canada	9,445	13,517	13,037	13,440	13,263	12,964	11,366	8,832	8,376	7,830
Germany	5,988	12,385	12,809	16,327	6,558	10,946	7,864	7,935	4,554	4,702
Other countries	33,350	31,957,	47,291	63,088	73,440	58,244	60,155	146,142	44,140	50,720
Total	278,279	287,335	302,425	434,898	410,836	397,695	388,252	255,311	297,940	305,984

VIRGINIA FIRE-CURED, TYPE 21

United Kingdom	4,889	3,626	1,357	1,234	1,923	2,324	1,413	1,824	554	1,308
Germany	3,621	3,571	5,493	2,966	2,085	2,588	1,879	1,943	1,450	1,702
Netherlands	2,971	2,810	2,807	1,164	839	1,025	1,255	2,147	1,067	1,265
Australia	2,912	2,480	2,336	780	775	2,015	689	522	326	359
China	399	70	1,774	111	179	107				10
Norway	1,506	1,880	2,020	2,657	1,648	1,881	1,265	1,442	1,742	1,457
Belgium	101	528	1,295	1,693	2,055	317	668	1,844	1,550	1,223
Canada	363	20	283	356	152	177	93	54	60	88
France	232	514	1,631	1,240	1,699	650	150			16
Other countries	3,349	2,891	5,281	6,494	12,767	4,295	4,018	4,594	5,187	3,998
Total	20,343	18,390	24,277	18,695	24,122	15,379	11,430	14,370	11,936	11,431

KENTUCKY AND TENNESSEE FIRE-CURED, TYPES 22, 23, AND 24

United Kingdom	22,023	15,734	9,149	6,547	7,271	6,288	5,579	4,749	4,725	2,111
Spain	15,025	1,479	19,423	13,292	1,966	1,047	2,463	9,493	15,854	13,626
France	12,253	32,823	20,769	13,465	15,582	37,516	18,494	31,274	21,365	20,275
Germany	11,471	10,453	10,027	9,280	10,916	8,810	8,091	7,289	6,272	5,113
Italy	10,212	4,066	385	650	2,587	3,165	3,228	694	649	885
Netherlands	9,071	13,611	8,039	8,962	11,167	13,345	7,507	2,948	3,438	1,894
Belgium	6,639	14,411	13,956	6,079	5,286	6,795	8,025	9,510	8,537	9,909
Other countries	30,280	27,270	30,260	25,739	25,002	28,474	14,584	13,436	15,734	11,608
Total	116,974	119,847	112,008	84,014	79,777	105,440	67,971	79,393	76,574	65,421

BURLEY, TYPE 31

Belgium	2,295	3,450	5,697	1,924	1,483	3,867	3,073	5,034	3,708	6,678
France	0	413	229	149	8	16	471	326	243	186
Portugal	1,248	1,094	2,362	1,238	1,433	2,746	1,635	1,813	1,482	2,849
Netherlands	200	136	3,332	60	151	156	382	1,171	1,368	1,938
Germany	33	197	1,618	185	103	209	387	763	388	481
Other countries	2,241	1,439	4,606	2,988	2,158	2,630	2,971	3,235	3,422	4,252
Total	6,017	6,729	17,844	6,544	5,336	9,624	8,919	12,342	10,611	16,384

MARYLAND, TYPE 32, AND OHIO EXPORT

France	6,404	5,514	8,957	3,547	6,016	3,253	3,788	3,750	2,066	162
Netherlands	2,947	4,595	5,317	3,328	1,435	1,080	546	2,441	2,763	3,267
Belgium	1,693	528	885	694	642	1,039	597	1,120	1,270	894
Germany	297	674	942	426	492	185	115	226	608	280
Switzerland	581	946	1,369	1,487	1,788	1,700	1,903	1,445	1,899	1,684
Other countries	1,991	1,335	2,566	1,465	1,204	2,464	600	1,187	580	816
Total	13,913	13,592	20,036	10,947	11,577	9,721	7,549	10,169	9,186	7,103

ONE SUCKER, TYPE 35

Belgium			1,588	921	208	790	981	299	640	596
British West Africa			2,087	1,694	2,370	1,154	89	367	188	112
Other countries			2,695	612	635	845	407	331	288	354
Total			6,370	3,227	3,213	2,789	1,477	997	1,116	1,062

[1] On a dry-weight basis, including some tobacco which has been stemmed.

TABLE 161.—*Tobacco:*[1] *Exports from the United States to principal importing countries, 1925–34*—Continued

GREEN RIVER, TYPE 36

Importing countries	Calendar year									
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
United Kingdom	9,018	3,638	4,615	2,401	5,434	4,117	4,205	2,727	1,404	879
British West Africa	2,798	3,122	1,347	817	1,044	310	89	368	360	166
China	2,286	2,663	1,025	214	540	455				
Belgium	700	1,491	900	698	594	1,177	475	579	409	760
Other countries	3,169	3,162	4,942	4,238	2,750	1,860	578	715	369	439
Total	17,971	14,076	12,829	8,368	10,362	7,919	5,347	4,389	2,542	2,244
BLACK FAT AND DARK AFRICAN, CONSISTING PRINCIPALLY OF ONE-SUCKER										
British Guiana			65	132	74	240	194	222	231	127
British West Africa			252	608	2,179	4,390	4,634	5,552	4,352	3,943
French Africa			107	356	2,331	2,059	2,480	2,685	2,064	1,896
Other countries			195	404	1,071	1,385	1,365	1,518	1,931	1,836
Total			619	1,500	5,655	8,074	8,673	9,977	8,578	7,802
CIGAR-LEAF TYPES										
Netherlands	55	101	68	14	86	94	169	48	765	110
Canada	331	142	203	310	333	292	239	130	54	190
Philippine Islands	309	263	217	242	321	188	230	297	432	490
France	0	0	0	0	3,465	3,384	2,997	195		3
Other countries	188	113	43	96	204	195	159	26	643	690
Total	883	619	531	662	4,409	4,153	3,794	696	1,894	1,483
TOTAL EXPORTS, ALL TYPES										
United Kingdom	171,115	149,720	182,542	173,671	214,598	193,816	157,506	121,901	174,765	180,287
China	82,598	85,792	51,359	160,391	100,675	109,504	161,340	74,781	69,369	64,747
Germany	21,587	27,854	31,387	30,164	20,461	23,044	20,443	29,175	13,803	18,325
Italy	11,263	5,814	3,262	1,817	3,368	3,881	4,085	2,224	1,660	2,141
France	21,723	49,573	38,082	21,447	35,840	56,517	29,655	36,602	24,695	21,935
Belgium	14,255	21,592	26,293	15,679	13,752	16,609	17,414	22,869	19,518	24,954
Netherlands	20,803	29,566	27,483	23,788	21,731	23,273	19,209	16,519	17,268	16,908
Australia	22,577	23,356	19,812	21,167	19,915	28,739	15,756	12,837	6,710	14,606
Spain	15,031	1,483	20,829	17,036	12,929	1,058	5,990	10,370	15,871	13,712
Canada	11,956	15,508	15,394	16,097	14,511	14,146	12,425	9,429	8,771	8,392
Other countries	75,563	68,515	89,809	94,155	97,567	90,371	80,649	74,452	67,988	74,859
Total	468,471	478,773	506,252	575,412	555,347	560,958	524,472[2]	411,159[2]	420,418	[2]440,866

[1] On a dry-weight basis, including some tobacco which has been stemmed.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States and official records of the Bureau of Foreign and Domestic Commerce.

TABLE 162.—*Tobacco reexports from the United States, 1923–34*

Calendar year	Leaf		Manufactured			Calendar year	Leaf		Manufactured		
	Cigar wrapper	Other	Cigarettes	Cigars and cheroots	Other		Cigar wrapper	Other	Cigarettes	Cigars and cheroots	Other
	Pounds	*Pounds*	*Lb.*	*Lb.*	*Lb.*		*Pounds*	*Pounds*	*Lb.*	*Lb.*	*Lb.*
1923	413,466	3,202,937	171	1,039	223,688	1929	268,905	4,934,744	500	11,720	34,468
1924	541,520	4,307,654	475	8,039	50,992	1930	809,097	1,501,507		3,895	15,702
1925	671,667	1,483,795	478	1,433	256,453	1931	228,460	343,306	2,964	571	15,136
1926	460,567	698,515	1,120	511	43,209	1932	436,673	311,942	(1)	(1)	[1]15,816
1927	330,826	1,160,033	7,808	86	79,306	1933	233,909	636,847	(1)	(1)	[1]5,315
1928	213,314	2,178,539	3,050	55	165,884	1934	201,184	438,357	(1)	(1)	[1]6,136

[1] Reported as total tobacco manufactured.

[2] Includes stems, trimmings, and scraps as follows; Year 1931, 20,925,000 pounds; 1932, 23,393,000 pounds; and 1934, 21,883,000 pounds.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States.

TABLE 163.—*Tobacco imported by the United States from foreign countries and shipments from possessions, 1925–34*

Product and country from which imported	Calendar year									
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Cigar wrapper:										
Netherlands	6,261	6,323	5,664	6,498	8,460	3,758	4,694	1,992	1,941	2,029
Other countries	174	228	120	133	103	100	51	514	130	119
Total	6,435	6,551	5,784	6,631	8,563	3,858	4,745	2,506	2,071	2,148
Other cigar leaf:										
Philippine Islands	1,166	908	1,611	3,727	3,963	4,680	4,144	3,560	1,627	1,485
Cuba	21,133	22,562	23,254	21,869	22,237	19,656	16,228	10,639	10,706	11,173
Puerto Rico	20,358	27,261	24,047	17,575	22,303	19,193	16,565	5,698	15,255	15,272
Other countries	163	110	288	13	20	58	8	4	8	(1)
Total	42,820	50,841	49,200	43,184	48,523	43,587	36,945	19,901	27,596	27,930
Cigarette leaf:										
Bulgaria	347	499	78	46			15	7		1
Germany	892	729	896	885	412	113	49	213	2	73
Greece	22,958	13,704	29,909	13,152	17,340	15,562	19,698	15,058	13,329	16,289
Italy	10,312	10,764	17,570	10,280	8,894	9,811	11,967	11,164	7,178	6,934
Turkey	12,085	9,812	20,957	15,624	4,162	14,280	11,409	8,136	16,323	13,264
Other countries	431	651	410	348	196	106	364	1,274	1,234	1,803
Total	47,025	36,159	69,820	40,335	31,004	39,872	43,502	35,852	38,066	38,364
Scrap and other unmanufactured	6,749	6,231	8,813	10,413	10,433	9,173	11,160	9,048	8,649	8,680

[1] Less than 500 pounds.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States.

TABLE 164.—*Tobacco products imported by the United States from foreign countries and shipments from possessions, calendar years 1925–34*

Product and country from which imported		1925	1926	1927	1928	1929
Cigarettes:						
Philippine Islands	pounds	2,258	38,311	36,643	25,229	16,546
Puerto Rico	thousands	2,850	4,625	5,227	5,368	4,730
Other countries	pounds	(1)	(1)	(1)	(1)	(1)
Cigars and cheroots:						
Philippine Islands	do	3,225,868	3,021,298	2,645,177	2,574,138	2,073,116
Puerto Rico	thousands	207,110	177,501	147,555	153,590	144,967
Other countries	pounds	517,442	424,327	413,077	390,271	380,530
All other manufactures	do	255,398	374,679	402,747	274,249	211,463

Product and country from which imported		1930	1931	1932	1933	1934
Cigarettes:						
Philippine Islands	pounds	6,246	9,523	2,627	19,238	5,699
Puerto Rico	thousands	17,767	11,670	4,431	3,933	4,207
Other countries	pounds	(1)	(1)	(1)	(1)	6
Cigars and cheroots:						
Philippine Islands	do	1,900,864	2,055,810	2,191,861	1,823,933	3,181,621
Puerto Rico	thousands	157,877	162,208	76,266	63,715	63,375
Other countries	pounds	280,195	216,934	41,654	31,071	42,614
All other manufactures	do	220,567	176,102	157,267	137,494	120,014

[1] Included in "All other manufactures."

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States.

TABLE 165.—*Tobacco used in manufacturing cigars, cigarettes, and other products, 1919–33* [1]

Calendar year	Cigars		Cigarettes		Tobacco and snuff	Total
	Large	Small	Large	Small		
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1919	162, 257, 051	3, 055, 055	152, 620	197, 880, 881	307, 575, 503	670, 921, 110
1920	183, 042, 903	2, 552, 099	141, 318	176, 739, 478	306, 360, 063	668, 835, 861
1921	153, 792, 423	2, 967, 051	140, 822	191, 004, 707	285, 826, 978	633, 731, 981
1922	149, 363, 275	2, 345, 976	142, 044	169, 455, 096	325, 509, 608	646, 815, 999
1923	157, 837, 176	1, 915, 384	156, 436	200, 238, 245	328, 888, 700	689, 035, 941
1924	151, 356, 058	2, 056, 784	137, 929	217, 562, 385	322, 745, 284	693, 858, 440
1925	147, 530, 760	1, 470, 374	144, 962	244, 170, 315	325, 109, 202	718, 425, 613
1926	151, 049, 170	1, 322, 339	108, 497	267, 475, 086	317, 399, 077	737, 354, 169
1927	151, 049, 265	1, 460, 667	95, 961	290, 368, 023	301, 314, 291	744, 288, 207
1928	149, 993, 168	1, 296, 722	87, 632	310, 070, 927	293, 176, 363	754, 624, 812
1929	150, 878, 378	1, 250, 740	92, 788	346, 450, 363	297, 953, 440	796, 625, 709
1930	136, 749, 916	1, 151, 057	65, 333	347, 849, 455	293, 990, 441	779, 806, 202
1931	126, 611, 200	1, 016, 997	43, 171	329, 919, 304	294, 812, 985	752, 403, 657
1932	103, 233, 757	1, 054, 270	18, 347	299, 010, 925	286, 816, 510	690, 133, 809
1933	103, 953, 997	745, 245	17, 325	326, 076, 032	279, 875, 778	710, 668, 377

[1] The quantities given are unstemmed equivalent of all kinds of tobacco used. Stemmed leaf and scraps, etc., used in manufacturing have been converted to unstemmed equivalent at the ratio of 3 pounds stemmed to 4 pounds unstemmed; in respect to leaf used in the manufacture of tobacco and snuff, prior to 1928 no conversion factor was used but in this table all figures are compiled on the conversion basis named.

Bureau of Internal Revenue, Treasury Department.

TABLE 166.—*Tobacco products manufactured, 1919–33*

Calendar year	Plug	Twist	Fine cut	Scrap chewing [1]	Smoking [1]	Snuff	Total
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1919	141, 037, 895	11, 290, 488	8, 165, 865	----------	228, 566, 655	35, 007, 882	424, 068, 785
1920	138, 563, 258	11, 765, 807	8, 680, 999	----------	219, 270, 561	34, 348, 941	412, 629, 566
1921	113, 384, 374	9, 261, 035	6, 892, 655	----------	222, 723, 045	34, 689, 917	386, 951, 026
1922	120, 174, 363	10, 947, 547	6, 892, 417	----------	243, 355, 372	38, 136, 406	419, 506, 105
1923	120, 798, 439	10, 665, 185	7, 140, 828	----------	234, 944, 139	39, 228, 284	412, 776, 875
1924	111, 477, 092	9, 901, 542	6, 780, 581	----------	246, 990, 137	39, 029, 026	414, 178, 378
1925	111, 390, 766	9, 749, 836	7, 151, 246	----------	247, 739, 899	37, 841, 222	413, 872, 969
1926	109, 766, 342	9, 179, 089	6, 984, 728	----------	246, 438, 832	38, 226, 725	410, 595, 716
1927	103, 918, 416	7, 988, 281	6, 286, 483	----------	237, 933, 677	40, 197, 123	396, 323, 980
1928	100, 646, 047	8, 891, 640	5, 186, 304	----------	231, 134, 105	40, 475, 382	386, 333, 478
1929	96, 744, 046	8, 187, 608	5, 555, 620	----------	229, 585, 163	41, 127, 453	381, 199, 890
1930	86, 273, 517	7, 623, 716	5, 089, 410	----------	232, 013, 383	40, 765, 883	371, 765, 909
1931	76, 652, 810	6, 377, 436	4, 170, 255	61, 235, 195	182, 947, 238	39, 854, 345	371, 237, 299
1932	61, 945, 173	4, 918, 034	3, 354, 471	50, 080, 201	190, 986, 528	35, 994, 337	347, 278, 744
1933	61, 361, 495	5, 041, 990	3, 120, 427	44, 724, 472	191, 766, 382	36, 098, 394	342, 113, 160

Calendar year	Cigars [2]		Cigarettes	
	Weighing more than 3 pounds per 1,000	Weighing not more than 3 pounds per 1,000	Weighing more than 3 pounds per 1,000	Weighing not more than 3 pounds per 1,000
	Number	*Number*	*Number*	*Number*
1919	7, 072, 357, 021	713, 235, 870	31, 888, 910	53, 119, 784, 232
1920	8, 096, 758, 663	633, 222, 232	28, 038, 552	47, 430, 105, 055
1921	6, 726, 095, 483	670, 482, 748	14, 518, 266	52, 085, 011, 560
1922	6, 722, 354, 177	632, 906, 635	17, 450, 456	55, 763, 022, 618
1923	6, 950, 247, 389	505, 305, 490	18, 065, 858	66, 715, 830, 430
1924	6, 597, 676, 535	530, 714, 332	16, 054, 285	72, 708, 989, 025
1925	6, 463, 193, 108	447, 089, 170	17, 428, 807	82, 247, 100, 347
1926	6, 498, 641, 233	412, 314, 795	13, 239, 765	92, 096, 973, 926
1927	6, 519, 004, 960	439, 419, 390	11, 432, 360	99, 809, 031, 619
1928	6, 373, 181, 751	415, 535, 410	10, 403, 004	108, 705, 505, 650
1929	6, 518, 533, 042	419, 880, 335	9, 952, 480	122, 392, 380, 846
1930	5, 893, 890, 418	383, 069, 980	7, 366, 925	123, 802, 186, 217
1931	5, 347, 921, 293	338, 996, 780	5, 159, 660	117, 062, 504, 394
1932	4, 382, 722, 918	278, 748, 580	3, 373, 577	106, 632, 433, 834
1933	4, 300, 044, 810	209, 514, 620	2, 845, 705	114, 874, 217, 470

[1] Prior to 1931, scrap chewing was included with smoking tobacco.

[2] Cigars produced in and removed for domestic consumption from bonded manufacturing warehouses are not included.

Bureau of Internal Revenue, Treasury Department.

TABLE 167.—*Tobacco, unmanufactured: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	525,232	78,243	524,472	74,452	411,159	56,905	438,936	57,253
Netherlands Indies	170,071	11,967	178,565	7,870	163,604	10,656	[2] 86,917	[2] 5,456
Greece	109,224	[3] 40	94,897	----------	77,827	--------	76,594	--------
Turkey	78,023	0	48,969	0	[4] 63,590	0	[4] 57,939	0
Brazil	67,864	3,869	83,264	2,251	59,189	1,529	44,299	--------
Bulgaria	57,616	0	54,205	0	45,176	0	49,629	1
Philippine Islands	47,940	674	53,691	790	50,521	1,870	37,250	--------
Cuba	42,279	0	40,294	0	36,869	0	--------	0
British India	40,432	16,192	36,423	11,002	31,426	15,910	36,568	12,027
Dominican Republic	36,528	0	15,011	0	9,779	0	12,476	0
Algeria	33,841	10,374	30,551	9,304	24,814	12,300	29,785	5,399
Paraguay	14,252	[5] 162	20,794	0	13,958	0	--------	0
Hungary	12,392	7,393	20,624	6,605	26,711	1,312	20,166	2,128
Union of Soviet Socialist Republics	9,873	0	6,389	0	6,991	0	11,614	0
Yugoslavia	4,994	766	6,490	454	12,821	369	10,176	221
Ceylon	2,243	70	2,584	872	1,622	--------	2,165	--------
Total	1,252,804	129,750	1,217,223	113,600	1,036,057	100,851	914,514	82,485
PRINCIPAL IMPORTING COUNTRIES								
Germany	679	217,778	657	158,258	548	179,057	672	185,662
United Kingdom	6,211	202,589	8,804	185,997	9,393	166,126	14,468	201,327
China	24,737	104,548	18,754	165,609	13,111	79,757	20,905	54,591
France	403	92,321	1,129	111,876	2,091	106,583	1,202	85,850
Netherlands	3,115	70,090	4,388	74,524	4,228	71,925	3,934	76,673
Spain	37	53,921	0	65,419	0	88,211	0	58,742
Belgium	82	45,005	685	49,846	551	49,034	203	44,004
Czechoslovakia	7	38,996	0	22,800	0	22,279	0	30,060
Poland	723	33,809	131	22,432	92	18,792	83	15,832
Austria	2,111	31,367	2,349	29,174	1,753	24,004	2,764	24,506
Argentina	417	23,945	599	26,538	627	13,758	576	22,299
Australia [6]	7	21,622	0	22,393	0	15,119	0	14,632
Canada	5,467	17,058	6,706	14,323	11,197	10,262	9,511	13,878
Egypt	0	16,639	0	13,677	0	12,548	0	12,019
Italy	7,333	16,165	9,301	6,004	7,916	8,833	8,328	6,347
Switzerland	92	13,166	405	16,692	304	16,097	37	18,560
Japan	2,952	12,832	1,766	16,080	1,415	8,321	3,135	8,927
Sweden	166	12,099	182	12,849	153	9,730	219	15,119
Denmark	2	11,835	0	13,481	21	14,565	10	16,516
Irish Free State	269	8,934	314	11,307	276	6,727	0	5,475
Finland	0	7,094	0	4,665	0	5,079	0	6,053
Norway	0	5,037	0	6,665	0	5,040	0	4,928
Total	54,810	1,056,850	56,170	1,050,609	53,676	931,847	66,047	922,000

[1] Preliminary.
[2] Java and Madura only.
[3] 3-year average.
[4] Source: Turkish Legation.
[5] 2-year average.
[6] Year ended June 30.

Bureau of Agricultural Economics; official sources. Tobacco comprises leaf, stems and strippings, but not snuff.

STATISTICS OF FRUITS AND VEGETABLES

TABLE 168.—*Almonds: Production and average price per ton received by producers, California, 1925–34*

Item	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934[1]
Production, short tons	7,500	16,000	12,000	14,000	4,700	13,500	14,800	14,000	12,900	10,900
Price, dollars	400	300	320	340	480	200	176	165	186	180
Farm value, basis average price, 1,000 dol.	3,000	4,800	3,840	4,760	2,256	2,700	2,605	2,310	2,399	1,962

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. Data for earlier years in 1928 Yearbook, table 165.

TABLE 169.—*Apples: Production, car-lot shipments, prices, and foreign trade, United States, 1919–34*

Year	Production		Weighted average price per bushel received by producers	Car-lot shipments from crop of year shown		Foreign trade, year beginning July[2 3]						
						Domestic exports				Imports, fresh and dried in terms of fresh	Net exports[4]	
	Total	Commercial[1]		Cars	Equivalent bushels	Fresh	Dried	Dried in terms of fresh	Canned in terms of fresh		Total	Percentage of production
	1,000 bushels	*1,000 bushels*	*Dollars*	*Number*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Per cent*
1919	*136,561*											
1919	140,786	81,521	1.75			3,152	11,819	1,231		849	3,534	2.5
1920	207,313	103,107	1.22	116,117	67,282	7,995	18,053	1,881		142	9,734	4.7
1921	95,478	66,274	1.64	89,559	58,148	3,282	12,431	1,295		1,353	3,224	3.4
1922	189,776	101,282	1.02	113,961	68,299	5,269	12,817	1,335		189	6,415	3.4
1923	180,968	109,917	1.13	138,184	84,452	12,295	30,410	3,168		132	15,331	8.5
1924	*152,967*											
1924	160,049	87,681	1.21	103,843	62,566	9,604	19,225	2,002	562	106	12,062	7.6
1925	151,752	100,123	1.25	127,804	76,983	11,015	24,833	2,587	538	74	14,066	9.2
1926	[5] 227,043	121,481	.90	133,550	80,704	21,293	32,670	3,403	675	84	25,287	11.1
1927	115,625	78,327	1.40	93,094	58,346	9,430	21,704	2,261	573	154	12,110	10.4
1928	176,721	107,860	1.08	127,530	80,184	21,043	50,024	5,211	1,151	117	27,288	15.4
1929	*126,438*											
1929	133,318	87,955	1.39	102,801	63,974	10,279	23,769	2,476	836	309	13,282	10.0
1930	153,372	102,058	1.02	109,794	71,472	20,341	38,121	3,971	640	103	24,849	16.2
1931	202,477	106,025	.65	101,731	63,079	18,030	31,557	3,287	695	82	21,930	10.8
1932	[5] 140,775	85,575	.62	77,422	49,920	13,754	36,601	3,813	748	6	18,309	13.0
1933	142,981	74,962	.78	62,344	40,218	12,259	37,339	3,889	439	13	16,574	11.6
1934[6]	119,855	75,160	.91	[7] 67,876	45,203							

[1] Included in "Total crop." By commercial crop is meant that portion of the total crop which is sold for consumption as fresh fruit.

[2] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34; and official records of the Bureau of Foreign and Domestic Commerce.

[3] Dried and canned are converted to terms of fresh apples on following bases: 1 pound of dried is equivalent to about 5 pounds fresh; 1 pound of canned is equivalent to about 2 pounds fresh; 48 pounds fresh equal 1 bushel. No reexports reported.

[4] Total exports (domestic plus foreign) minus imports. Beginning 1933–34 domestic exports minus imports for consumption. (See introductory text.)

[5] Includes 6,724,000 bushels in 1926 and 220,000 bushels in 1932 not harvested on account of market conditions. Prices and value are computed on the harvested crop.

[6] Preliminary.

[7] December forecast of total shipments from 1934 crop.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board, revised. See introductory text. Italic figures are census returns. Prices to producers are based upon returns from crop reporters.

TABLE 170.—*Apples: Production and weighted average price per bushel received by producers, by States, average 1927–31, and annual 1933 and 1934*

State and division	Production						Price for crop of—	
	Total			Commercial [1]				
	Average 1927–31	1933	1934 [2]	Average 1927–31	1933	1934 [2]	1933	1934 [2]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Dollars*	*Dollars*
Maine	1,661	1,884	556	1,129	1,017	368	0.69	1.28
New Hampshire	877	1,131	312	597	849	235	.73	1.50
Vermont	789	1,027	255	507	675	190	.99	1.67
Massachusetts	2,535	3,486	1,435	1,808	2,490	1,085	.76	1.37
Rhode Island	309	350	97	205	231	76	.89	1.55
Connecticut	996	1,184	356	659	855	276	.98	1.58
New York	16,836	16,060	11,844	11,689	9,600	8,554	.93	1.09
New Jersey	3,191	3,380	2,070	2,188	2,145	1,440	.94	1.24
Pennsylvania	8,909	7,293	8,554	3,523	2,154	3,400	.92	.93
North Atlantic	36,101	35,795	25,479	22,305	20,016	15,624	.90	1.09
Ohio	6,653	4,380	4,032	1,975	1,500	1,400	.92	1.05
Indiana	1,895	819	1,020	642	234	306	1.02	1.11
Illinois	4,728	2,200	2,162	3,175	1,600	1,610	.99	1.21
Michigan	6,261	8,651	6,464	3,990	5,184	4,224	.70	.86
Wisconsin	1,661	1,938	1,204	390	408	258	.79	1.04
Minnesota	976	960	339	114	99	38	.71	1.30
Iowa	1,483	1,425	962	276	255	192	1.03	1.25
Missouri	2,549	3,132	1,534	1,317	1,620	780	.76	1.12
South Dakota	144	68	34				1.32	1.50
Nebraska	529	370	209	215	160	100	1.02	1.33
Kansas	1,305	1,431	783	887	939	513	.88	1.25
North Central	28,183	25,374	18,743	12,981	11,999	9,421	.82	1.04
Delaware	1,336	932	688	1,099	636	493	.81	1.00
Maryland	2,056	1,312	1,102	1,355	657	615	.75	.92
Virginia	12,914	10,900	9,275	8,040	5,250	6,562	.71	.79
West Virginia	7,001	4,200	3,630	3,918	2,100	2,475	.69	.97
North Carolina	3,386	5,254	3,525	625	1,011	691	.65	.85
South Carolina	271	279	244				1.14	1.11
Georgia	1,005	1,150	874	376	354	290	.84	1.03
South Atlantic	27,969	24,027	19,338	15,413	10,008	11,126	.71	.86
Kentucky	2,235	2,340	934	367	288	118	.87	.96
Tennessee	1,941	2,194	1,748	265	228	186	.82	.94
Alabama	645	648	588				.94	1.40
Mississippi	175	174	133				1.22	1.27
Arkansas	1,660	1,925	1,715	887	1,074	956	.71	.85
Louisiana	21	22	12				1.22	1.16
Oklahoma	358	350	348	58	60	62	.76	.88
Texas	145	98	134				1.10	1.18
South Central	7,179	7,751	5,612	1,577	1,650	1,322	.83	.97
Montana	485	525	358	369	264	212	.76	.87
Idaho	5,426	5,244	3,312	4,487	3,500	2,976	.65	.87
Wyoming	49	50	28				.92	1.52
Colorado	2,103	1,454	1,354	1,922	1,300	1,268	.58	.85
New Mexico	810	285	1,240	571	168	744	1.22	.96
Arizona	74	51	63	28	15	24	1.76	1.71
Utah	750	313	554	531	219	403	.90	.96
Nevada	47	39	36				1.20	1.29
Washington	32,306	29,240	32,300	27,476	20,000	25,500	.75	.78
Oregon	4,981	3,500	4,938	3,365	1,800	3,100	.64	.69
California	9,839	9,333	6,500	5,420	4,023	3,440	.61	.80
Western	56,871	50,034	50,683	44,169	31,289	37,667	.71	.79
United States	156,303	142,981	119,855	96,445	74,962	75,160	.78	.91

[1] Included in "Total crop." By commercial crop is meant that portion of the total crop which is sold for consumption as fresh fruit.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 171.—*Apples: Weighted average auction price per box, New York, 1930–31 to 1934–35*

Variety and season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
Gravenstein:	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1930–31	2.17	2.09	1.81											2.06
1931–32	2.27	2.16	1.35											2.08
1932–33	1.60	1.21	1.57											1.37
1933–34	1.92	1.58	1.31											1.52
1934–35	2.11	2.03												
Winter Banana:														
1930–31		2.00	1.68	1.53	1.38	1.44	1.37	1.57		1.59				1.63
1931–32		2.06	1.25	1.30	1.18	1.27	1.09	1.58		.90	0.85			1.30
1932–33		1.25	1.34	1.00		.71		1.15						1.25
1933–34			1.33	1.18	1.10		1.03							1.25
1934–35		1.59	1.43	1.36										
Delicious:[1]														
1930–31			2.70	2.49	2.56	2.58	2.51	2.40	2.39	2.41	2.45	2.03	1.88	2.44
1931–32			2.38	2.09	2.06	2.12	1.88	2.05	2.09	2.26	1.94	1.70		2.07
1932–33			2.12	1.71	1.64	1.61	1.44	1.44	1.58	1.94	1.92	1.79	.80	1.63
1933–34			2.43	1.85	1.94	2.13	2.43	2.48	2.38	2.36	2.21	1.80	1.51	2.18
1934–35			2.03	1.90	1.93	1.90								
Jonathan:														
1930–31			2.23	1.80	1.82	1.69	1.77							1.86
1931–32			1.65	1.46	1.24	1.18	1.15	1.05	.88	1.30				1.39
1932–33			1.99	1.40	1.36	1.15	1.09		.50	.80	.70			1.46
1933–34			1.86	1.50	1.33	1.35	1.25	1.25						1.46
1934–35		2.50	1.68	1.47	1.57	1.39								
McIntosh:														
1930–31			1.75	2.02	1.96	1.84	1.70	1.78	2.01	2.33	2.60			1.92
1931–32			1.61	1.92	2.04	1.96	1.82	1.84	2.05	2.05	1.99	2.36		1.97
1932–33			1.65	1.35	1.29	1.32	1.25	1.16	1.16	1.23	1.43	1.96		1.31
1933–34			1.47	1.15			1.39	1.57	1.78	2.18				1.53
1934–35		1.88	1.60	1.74	1.76	1.95								
Rome Beauty:														
1930–31			2.27	1.98	1.79	1.70	1.68	1.76	1.89	1.99	2.07	1.88	1.29	1.84
1931–32			2.35	1.76	1.54	1.51	1.42	1.36	1.38	1.39	1.30	1.26	.81	1.44
1932–33			1.68	1.52	1.30	1.39	1.32	1.28	1.18	1.21	1.28	1.38		1.30
1933–34			2.23	1.64	1.41	1.72	1.75	1.86	1.72	1.91	2.04	1.48	1.20	1.73
1934–35			1.64	1.68	1.60	1.63								
Esopus Spitzenberg:														
1930–31				2.02	2.08	2.10	1.96	1.80	1.87	1.68				2.01
1931–32				1.87	1.82	1.66	1.45	1.45	1.41	1.35	.97			1.73
1932–33				1.55	1.46	1.43	1.23	1.28	1.22	1.24	1.19			1.40
1933–34				1.77	1.63	1.87	1.96	1.64	1.60	1.45				1.77
1934–35				1.70	1.74	1.60								
Yellow Newtown:														
1930–31				2.04	2.79	1.84	1.95	1.87	1.99	2.11	2.32	2.49		2.24
1931–32				1.84	1.96	1.80	1.38	1.62	1.70	1.88	2.06	2.08	1.24	1.94
1932–33				1.62	1.41	1.32	1.25	1.27	1.31	1.48	1.70	2.19	2.48	1.76
1933–34					2.20	1.81	1.63	1.83	2.06	2.21	2.09	1.96	1.49	1.99
1934–35			1.50	1.52	1.66	1.61								
Winesap:[1]														
1930–31					2.15	2.16	2.13	2.00	2.16	2.23	2.27	2.08	2.09	2.14
1931–32				1.52	1.78	1.77	1.52	1.47	1.53	1.60	1.42	1.52	1.48	1.53
1932–33					1.35	1.49	1.38	1.36	1.31	1.52	1.45	1.60	1.73	1.50
1933–34					1.74	1.72	1.94	1.98	1.92	1.90	1.75	1.70	1.50	1.76
1934–35				1.35	1.63	1.63								
Summary:														
1930–31	2.17	2.09	2.02	2.02	2.03	2.06	2.01	2.01	2.12	2.21	2.30	2.18	2.08	[1] 2.10
1931–32	2.27	2.16	1.70	1.78	1.77	1.77	1.60	1.65	1.72	1.74	1.60	1.62	1.47	[1] 1.71
1932–33	1.60	1.21	1.69	1.55	1.49	1.51	1.38	1.37	1.41	1.57	1.59	1.80	1.76	[1] 1.51
1933–34	1.92	1.58	1.45	1.69	1.71	1.92	2.06	2.19	2.07	2.15	2.00	1.80	1.50	[1] 1.90
1934–35	2.11	1.89	1.71	1.74	1.80	1.76								

[1] Average for season includes a price in August for old-crop apples as follows: Delicious, 1933–34, $0.67; Winesap, 1930–31, $1.78; 1931–32, $0.94; 1932–33, $1.55; 1933–34, $1.44.

Bureau of Agricultural Economics; compiled from New York Daily Fruit Reporter, deciduous section. Prices are weighted by number of boxes sold.

TABLE 172.—*Apples: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	201.4	158.7	130.7	112.5	120.5	127.7	137.4	146.3	146.3	139.8	143.2	148.2	125.1
1926–27	168.7	133.8	103.8	88.4	80.2	81.6	87.7	97.3	98.8	100.0	103.8	113.5	89.5
1927–28	140.0	144.4	135.8	130.7	134.7	141.8	152.4	161.7	168.3	177.0	183.3	190.6	139.8
1928–29	188.7	156.0	105.5	96.6	99.4	107.9	118.5	124.1	129.9	134.1	133.5	147.9	108.1
1929–30	153.1	160.5	138.9	131.0	137.9	135.6	143.4	148.3	154.0	155.2	159.9	168.2	138.6
1930–31	173.6	144.8	106.3	103.2	98.4	96.7	98.8	103.8	106.0	105.5	117.1	121.9	102.2
1931–32	131.5	107.9	77.4	70.7	58.9	61.3	64.7	66.4	66.4	71.2	79.2	82.7	65.2
1932–33	92.1	86.2	65.1	57.4	57.2	57.1	61.7	65.1	66.3	70.3	78.6	84.9	61.6
1933–34	88.7	86.9	74.7	72.8	70.3	73.1	80.0	89.4	96.7	103.6	109.0	113.7	78.2
1934–35	121.8	100.5	82.1	82.2	84.4	89.3	94.0						[1] 91.3

[1] Preliminary.

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 133. Only monthly prices are comparable.

TABLE 173.—*Apples: Car-lot shipments in eastern and western areas and United States by months, 1925–26 to 1934–35*

State group and season	Crop-movement season [1]												
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Total eastern:	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1925–26	379	2,436	3,562	12,966	24,844	10,313	3,211	3,319	3,817	3,805	2,243	1,234	379	72,502
1926–27	165	2,271	2,035	11,728	26,133	14,232	4,358	5,110	5,422	3,675	2,279	1,295	476	79,179
1927–28	243	1,507	2,480	7,754	15,868	6,927	2,310	2,353	1,966	1,434	870	504	199	44,415
1928–29	196	1,867	2,881	11,645	23,355	8,210	3,512	3,665	2,899	2,170	1,258	766	284	62,708
1929–30	512	1,697	2,651	10,426	18,068	5,634	2,438	2,780	2,581	2,440	1,307	602	303	51,439
1930–31	388	1,915	1,732	6,194	14,370	6,990	2,820	3,161	2,715	1,857	666	357	91	43,256
1931–32	339	1,714	1,015	7,121	18,624	9,139	3,151	4,168	3,947	2,837	1,348	574	228	54,205
1932–33	231	1,101	805	4,866	11,100	4,496	1,936	2,474	2,261	1,652	996	636	281	32,835
1933–34 [2]	247	1,008	579	4,507	8,014	3,212	1,608	2,126	1,670	1,681	710	285	79	25,726
1934–35 [2]	99	495	629	3,560	8,505	2,485	1,644							
Total western:														
1925–26	54	459	768	7,945	20,051	9,772	4,161	2,934	3,038	2,423	1,871	1,260	566	55,302
1926–27	95	1,569	1,352	9,222	19,188	9,019	4,007	2,859	2,598	1,673	1,317	1,060	412	54,371
1927–28	10	308	1,059	4,352	17,688	10,182	3,653	2,962	2,934	2,066	1,485	1,315	665	48,679
1928–29	34	1,585	1,449	7,760	22,546	11,564	4,797	4,109	4,850	3,248	1,686	944	250	64,822
1929–30	2	325	1,140	3,570	19,621	9,014	3,544	3,443	3,816	2,777	2,355	1,372	383	51,362
1930–31	32	1,412	1,198	7,165	22,482	10,761	5,415	4,787	4,521	3,896	2,430	1,714	725	66,538
1931–32	61	1,435	966	5,890	12,286	5,481	4,188	4,085	4,344	3,635	2,401	1,838	916	47,526
1932–33	44	1,509	882	3,902	12,978	6,320	4,192	3,921	3,698	3,368	1,864	1,356	553	44,587
1933–34 [2]	14	504	995	1,833	8,445	6,031	5,187	4,665	3,001	2,684	1,551	1,107	524	36,541
1934–35 [2]	[3] 77	688	1,275	7,113	9,426	5,286	4,028							
Total United States:														
1925–26	433	2,895	4,330	20,905	44,895	20,085	7,372	6,253	6,855	6,228	4,114	2,494	945	127,804
1926–27	260	3,840	3,387	20,950	45,321	23,251	8,365	7,969	8,020	5,348	3,596	2,355	888	133,550
1927–28	253	1,815	3,539	12,106	33,556	17,109	5,963	5,315	4,900	3,500	2,355	1,819	864	93,094
1928–29	230	3,452	4,330	19,405	45,901	19,774	8,309	7,774	7,749	5,418	2,944	1,710	534	127,530
1929–30	514	2,022	3,791	13,996	37,689	14,648	5,982	6,223	6,397	5,217	3,662	1,974	686	102,801
1930–31	420	3,327	2,930	13,359	36,852	17,751	8,235	7,948	7,236	5,753	3,096	2,071	816	109,794
1931–32	400	3,149	1,981	13,011	30,910	14,620	7,339	8,253	8,291	6,472	3,749	2,412	1,144	101,731
1932–33	275	2,610	1,687	8,768	24,078	10,816	6,128	6,395	5,959	5,020	2,860	1,992	834	77,422
1933–34 [2]	261	1,512	1,574	6,340	16,459	9,243	6,795	6,791	4,671	4,365	2,261	1,392	603	62,267
1934–35 [2]	[3] 176	1,183	1,904	10,673	17,931	7,771	5,672							

[1] Crop movement season covers 13 months, from June of one year through June of the following year.
[2] Beginning January 1934, figures are preliminary.
[3] Includes 3 cars shipped in May.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 174.—*Apples: L. c. l. price per bushel, New York, 1930–31 to 1934–35*

Variety and season	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
Baldwin:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1930–31	-------	[1] 1.19	1.14	1.25	[1] 1.36	[1] 1.53	[1] 1.59	2.00	[1] 2.09	1.52
1931–32	-------	-------	-------	[1] .82	[1] .91	.93	1.06	1.23	[1] 1.19	1.02
1932–33	-------	-------	[1] .85	[1] .72	1.08	1.11	-------	1.09	1.02	.98
1933–34	-------	.83	.85	.84	.89	1.04	1.30	1.33	1.44	1.06
1934–35	-------	1.13	-------	1.33	-------	-------	-------	-------	-------	-------
McIntosh (New York State):										
1930–31	1.62	1.67	1.72	1.64	1.53	1.60	[1] 1.97	2.13	[1] 2.53	1.82
1931–32	1.38	1.70	1.78	1.79	1.85	-------	2.11	2.12	[1] 1.76	1.81
1932–33	1.06	1.13	1.18	1.10	1.15	1.13	1.25	1.53	-------	1.19
1933–34	1.10	1.15	1.37	1.46	1.51	1.60	1.70	1.97	-------	1.48
1934–35	1.61	1.95	2.05	1.98	-------	-------	-------	-------	-------	-------
Greening: [2]										
1930–31	1.09	1.06	1.17	1.33	1.28	1.36	1.64	-------	-------	1.28
1931–32	-------	1.08	1.28	1.26	1.16	1.07	1.23	-------	-------	1.18
1932–33	-------	.72	.76	.78	.71	.75	.93	[1] 1.27	-------	.85
1933–34	.98	1.03	1.21	1.18	1.34	1.55	-------	-------	-------	1.22
1934–35	1.13	1.11	1.30	1.23	-------	-------	-------	-------	-------	-------

[1] Less than 10 quotations.
[2] Includes Rhode Island Greening and Northwestern Greening.

Bureau of Agricultural Economics; compiled from daily market reports from the Bureau representative at New York.

Average prices as shown are based on stock of good merchantable quality and condition, 2½ inches unless otherwise stated; they are simple averages of daily range of selling prices. Average for season is simple average of monthly averages.

TABLE 175.—*Apples: Car-lot shipments, by State of origin, 1924–25 to 1933–34*

State	Crop-movement season [1]									
	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Maine	2,115	1,320	660	889	227	1,333	989	154	1,216	795
New Hampshire	805	498	339	515	355	322	719	71	220	538
Vermont	324	321	316	563	324	630	490	591	609	472
Massachusetts	587	302	477	298	388	275	975	48	180	622
New York	16,631	29,499	21,680	10,030	13,671	9,253	15,429	9,090	10,579	6,663
New Jersey	130	441	340	701	354	331	906	200	158	104
Pennsylvania	1,706	2,486	4,988	3,005	2,796	2,401	2,765	3,313	2,913	1,120
Ohio	1,046	1,022	1,739	837	1,547	438	196	1,643	391	219
Indiana	274	407	723	113	528	186	210	611	112	98
Illinois	5,867	6,561	6,149	2,552	5,046	2,326	3,388	4,779	1,884	870
Michigan	3,443	6,008	4,328	2,002	2,651	4,053	1,884	2,819	1,393	2,084
Wisconsin	253	420	387	366	432	595	151	139	138	249
Missouri	2,939	3,056	2,015	736	1,758	758	541	1,295	217	772
Kansas	1,294	1,165	675	1,458	516	670	249	1,252	33	942
Delaware	1,384	1,896	2,099	1,352	1,352	820	1,353	724	819	402
Maryland	1,239	1,333	2,491	1,792	1,722	1,852	1,378	2,048	976	683
Virginia	13,079	7,397	18,674	8,686	20,282	16,705	7,402	17,172	6,990	5,958
West Virginia	3,762	3,927	7,393	7,054	6,608	7,385	3,381	6,987	3,772	2,638
Arkansas	3,451	3,191	1,842	629	1,265	417	331	331	106	123
Montana	173	29	343	149	527	391	388	252	237	95
Idaho	2,223	7,485	3,677	7,709	6,508	7,119	6,972	5,354	4,324	4,871
Colorado	2,404	3,193	2,877	2,228	2,804	2,322	1,082	1,093	1,361	683
New Mexico	864	1,112	785	467	305	966	212	280	110	8
Utah	338	1,198	450	428	611	196	1,089	3	479	14
Washington	25,156	35,046	34,729	30,280	41,317	34,220	45,217	34,558	30,822	26,311
Oregon	5,515	4,702	6,422	3,396	6,447	2,680	5,624	2,139	3,324	1,748
California	4,891	2,531	5,084	4,020	6,300	3,462	5,953	3,847	3,930	2,811
Other States	1,950	1,258	1,868	839	889	695	520	938	129	374
Total	103,843	127,804	133,550	93,094	127,530	102,801	109,794	101,731	77,422	62,267

[1] Crop-movement season extends from June of one year through June of the following year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 176.—*Apples: Cold-storage holdings, United States, 1925–26 to 1934–35*

BARRELS[1]

Season	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1
	1,000 barrels	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*
1925–26	885	3,749	4,245	3,855	3,157	2,288	1,307	617	221
1926–27	484	3,188	4,554	4,077	3,178	2,152	1,286	650	229
1927–28	449	1,864	2,055	1,699	1,266	846	501	262	121
1928–29	652	2,978	2,889	2,354	1,678	1,128	652	319	108
1929–30	735	2,189	2,097	1,762	1,316	897	481	229	96
1930–31	500	1,571	1,456	1,197	834	482	200	86	38
1931–32	398	2,285	2,177	1,944	1,322	762	369	165	63
1932–33	389	1,242	1,349	1,209	924	609	337	182	64
1933–34	276	949	892	720	501	353	188	87	26
1934–35	209	872	797						

BUSHEL BASKETS

	1,000 baskets	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*
1925–26	519	2,056	2,419	2,103	1,672	1,138	672	329	124
1926–27	352	2,235	2,713	2,472	2,037	1,589	952	533	199
1927–28	724	3,309	3,905	3,177	2,315	1,536	900	460	222
1928–29	1,084	4,932	5,057	4,240	3,204	2,171	1,308	590	220
1929–30	1,793	6,379	6,613	5,507	4,005	2,805	1,555	763	309
1930–31	1,982	6,748	6,946	5,996	4,469	2,855	1,300	571	193
1932–32	2,032	9,787	10,817	9,681	7,694	5,182	2,737	1,269	465
1932–33	2,342	9,881	10,533	9,117	7,213	5,237	3,268	1,691	640
1933–34	2,851	8,632	8,577	7,388	5,680	3,923	2,062	930	298
1934–35	3,370	10,858	10,555						

BOXES[2]

	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
1925–26	1,091	9,165	13,041	11,868	10,009	7,898	5,350	2,892	1,104
1926–27	1,809	9,523	15,083	13,365	10,435	7,298	4,613	2,312	717
1927–28	1,043	9,074	13,423	12,260	9,809	7,023	4,960	2,889	1,223
1928–29	1,854	12,333	17,452	15,853	12,388	7,995	4,889	2,224	631
1929–30	901	11,045	15,235	13,108	10,149	7,282	4,790	2,446	761
1930–31	2,135	15,669	21,267	19,137	15,347	11,371	6,852	3,683	1,425
1931–32	3,203	15,472	16,849	14,617	11,761	8,789	5,886	3,392	1,364
1932–33	2,414	12,873	14,852	12,794	10,124	7,179	4,462	2,463	938
1933–34	1,567	11,067	13,874	11,857	9,239	6,591	3,766	1,965	809
1934–35	8,279	17,750	18,037						

TOTAL[3]

	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1925–26	4,266	22,467	28,194	25,536	21,153	15,900	9,942	5,073	1,890
1926–27	3,612	21,321	31,458	28,068	22,005	15,342	9,423	4,794	1,602
1927–28	3,114	17,976	23,493	20,534	15,923	11,097	7,363	4,134	1,808
1928–29	4,893	26,199	31,177	27,154	20,626	13,551	8,153	3,772	1,174
1929–30	4,900	23,991	28,139	23,902	18,102	12,778	7,787	3,895	1,358
1930–31	5,618	27,129	32,580	28,725	22,317	15,672	8,751	4,512	1,731
1931–32	6,429	32,115	34,197	30,129	23,421	16,257	9,729	5,157	2,019
1932–33	5,922	26,481	29,433	25,539	21,109	14,244	8,682	4,701	1,770
1933–34	5,247	22,545	25,128	21,405	16,422	11,574	6,393	3,156	1,185
1934–35	12,276	31,224	30,983						

[1] Mostly in eastern and central United States.
[2] Mostly western apples.
[3] 1 barrel is considered the equivalent of 3 boxes or 3 bushel baskets.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.

TABLE 177.—*Apples:*[1] *International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [2]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
United States	14,448	137	15,850	157	17,785	36	16,919	54	11,029	7
Canada	3,626	542	6,390	485	4,783	424	4,708	225	8,716	113
Australia [3]	2,161	0	3,621	0	2,770	0	3,916	0	4,737	0
France [4]	1,876	608	1,314	1,737	1,722	3,016	1,769	2,548	3,331	1,579
Italy	1,597	1	1,908	3	1,535	6	1,236	9	1,358	5
Netherlands	1,309	422	448	778	721	911	998	1,114	1,381	970
Belgium	1,122	303	1,005	704	486	964	1,927	618	1,282	980
Rumania	[5] 734	[5] 1	[6] 604	[6] 3	354	17	140	1		
Yugoslavia	783	[5] 2	2,688	2	865	5	1,999	1	343	0
New Zealand	565	31	1,072	27	1,081	12	1,259	4	1,092	5
Total	28,221	2,047	34,900	3,896	32,102	5,391	34,871	4,574	33,269	3,659
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	14,247	0	13,583	0	17,007	0	18,078	0	16,615
Germany	34	8,415	40	11,195	157	5,444	116	11,758	43	9,879
Sweden	0	754	150	683	0	829	0	799	73	4,449
Denmark	1	684	3	674	0	912	1	453	101	354
Irish Free State	2	469	6	449	5	475	7	517		401
Egypt	2	379	1	360	2	194	1	161	0	164
Norway	0	[4] 202	0	[4] 170	0	[4] 210	0	147	1	94
Brazil	0	191	0	114	0	146	0	134	0	
Finland	0	178	0	166	0	141	0	86	0	59
Cuba	0	96	0	80	0	58	0	46	0	
Poland	18	88	150	484	7	375	3	163	0	278
Total	57	25,703	350	27,958	171	25,791	128	32,342	218	28,293

[1] Foreign weights are converted to bushels on the basis of 48 pounds per bushel; domestic, 1 barrel equals 3 boxes (or bushels).
[2] Preliminary.
[3] Year ended June 30.
[4] Includes pears.
[5] 4-year average.
[6] Includes pears and quinces.

Bureau of Agricultural Economics; official sources.

TABLE 178.—*Apricots: Production and average price per ton received by producers, California, 1925–34*

Item	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934[1]
Production...short tons	150,000	176,000	208,000	175,000	215,000	[2] 200,000	[2] 277,000	[2] 270,000	268,000	140,000
Price...dollars	54.00	63.00	57.00	50.00	63.00	39.00	29.00	17.70	29.70	53.45
Farm value, basis average price...1,000 dollars	8,100	11,088	11,856	8,750	13,545	7,476	7,917	4,549	7,960	7,483

[1] Preliminary.
[2] Includes some fruit not harvested on account of market conditions (but not included in computing value), as follows: 1930, 8,300 tons; 1931, 4,000 tons; 1932, 13,000 tons.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 179.—*Asparagus, commercial crop: Acreage, production, and season average price per crate and per ton received by producers, average 1928–32, annual 1933 and 1934*

Utilization	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 crates* [1]	*1,000 crates* [1]	*1,000 crates* [1]	*Dollars*	*Dollars*	*Dollars*
For market	56,490	60,630	65,710	4,430	4,729	5,406	2.15	1.26	1.26
				Short tons	*Short tons*	*Short tons*			
For manufacture	41,150	55,470	47,120	59,360	67,700	56,500	74.44	56.00	63.38

[1] Crates containing approximately 24 pounds.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and canning establishments.

TABLE 180.—*Artichokes, commercial crop: Acreage, production, and season average price per box received by producers, average 1928–32, annual 1933 and 1934*

State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 boxes* [1]	*1,000 boxes* [1]	*1,000 boxes* [1]	*Dollars*	*Dollars*	*Dollars*
California	7,770	6,350	8,350	873	743	1,060	1.93	1.24	1.00

[1] Boxes containing approximately 40 pounds.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 181.—*Avocados: Production and average price per ton or per box received by producers, California and Florida, 1924–34*

Year	California			Year	California			Florida		
	Production	Price per ton	Farm value, basis average price		Production	Price per ton	Farm value, basis average price	Production	Price per box [1]	Farm value, basis average price
	Short tons	*Dollars*	*1,000 dollars*		*Short tons*	*Dollars*	*1,000 dollars*	*Boxes* [1]	*Dollars*	*1,000 dollars*
1924	129	720	93	1929	396	658	261	21,000	2.85	60
1925	233	540	126	1930	2,110	260	549	31,000	3.85	119
1926	625	400	250	1931	2,525	166	419	41,000	2.90	119
1927	319	680	217	1932	1,647	171	282	70,000	1.75	122
1928	1,125	330	371	1933	2,450	168	412	110,000	1.95	214
				1934 [2]	9,360	60	562	100,000	1.50	150

[1] Boxes of 40 pounds.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 182.—*Beans, lima, commercial crop: Acreage, production, and season average price per bushel and per ton received by producers; average 1928–32, annual 1933 and 1934*

Utilization	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	9,230	11,850	12,350	601	568	580	1.84	1.02	1.12
				Short tons [2]	*Short tons* [2]	*Short tons* [2]			
For manufacture	[3] 25,550	16,430	24,350	[3] 12,620	8,860	16,710	[3] 76.21	56.66	59.49

[1] Bushels containing approximately 32 pounds, unshelled.
[2] Reported on shelled basis.
[3] Short-time average.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and canning establishments.

TABLE 183.—*Beans, snap, commercial crop: Acreage, production, and season average price per bushel and per ton received by producers; average 1928–32, annual 1933 and 1934*

Utilization	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	107,230	123,000	147,100	[2] 9,447	[2] 10,832	[2] 13,486	1.41	0.91	0.83
				Short tons	*Short tons*	*Short tons*			
For manufacture	54,710	40,770	44,850	73,100	60,200	67,400	55.46	38.59	41.19

[1] Bushels containing approximately 30 pounds.
[2] Includes some quantities not harvested on account of market conditions: 437,000 bushels in 1930; 150,000 in 1931; 695,000 in 1932; 263,000 in 1933, and 976,000 bushels in 1934. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and canning establishments.

TABLE 184.—*Beans, snap: Car-lot shipments, by State of origin, 1923–34*

State	Calendar year [1]											
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	33	81	62	39	31	49	69	30	98	66	15	22
New Jersey	15	100	48	56	203	110	61	114	129	58	137	183
Maryland	49	136	127	197	235	246	214	352	479	238	178	217
Virginia	101	899	570	841	877	657	1,025	541	598	663	335	540
North Carolina	261	559	459	550	504	690	736	998	711	626	474	502
South Carolina	585	517	334	449	425	439	779	682	721	563	263	473
Georgia	26	68	27	52	96	48	152	230	175	139	48	132
Florida	1,644	1,157	1,992	946	2,583	2,700	3,254	4,118	4,319	6,941	7,868	9,328
Tennessee	81	248	84	174	45	119	132	233	83	50	16	47
Mississippi	47	85	88	130	143	192	312	310	208	284	45	418
Arkansas	2	7	13	18	18	69	92	130	36	28	3	2
Louisiana	107	439	683	588	662	822	1,156	744	857	525	360	769
Texas	88	210	407	414	471	294	356	654	607	395	489	163
Colorado			5		5	3	58	165	76	10	42	6
California	26	32	118	127	60	116	77	119	92	73	173	156
Other States	59	154	116	126	123	132	153	139	159	136	83	95
Total	3,124	4,692	5,133	4,707	6,481	6,686	8,626	9,559	9,348	10,795	10,529	13,053

[1] Crop-movement season is for calendar year, except Florida which begins in October of the preceding year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included. Beginning 1931 figures include lima beans in pod.

TABLE 185.—*Beets, commercial crop: Acreage, production, and season average price per bushel and per ton received by producers; average 1928–32, annual 1933 and 1934*

Utilization	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	9,560	10,400	12,220	[2] 1,770	1,657	2,254	0.58	0.48	0.43
				Short tons	*Short tons*	*Short tons*			
For canning	[3] 6,340	4,040	5,690	[3] 35,900	24,800	33,800	[3] 13.26	9.72	10.53

[1] Bushels containing approximately 52 pounds.
[2] Includes 450,000 bushels in 1931 not harvested on account of market conditions. Price refers to harvested portion of crop.
[3] Short-time average.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and canning establishments.

TABLE 186.—*Cabbage, commercial crop: Acreage, production, and season average price per ton received by producers, by States; average 1928–32, annual 1933 and 1934*

FOR MARKET AND SAUERKRAUT

Group and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
Fall:	*Acres*	*Acres*	*Acres*	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*	*Dollars*
South Carolina	640	1,100	900	5,200	4,400	7,200	41.82	10.00	30.00
Virginia, Norfolk	170	200	100	700	1,000	400	45.12	16.00	33.50
Total	810	1,300	1,000	5,900	5,400	7,600	42.20	11.11	30.13
Early: [1]									
California	4,430	4,400	5,250	[2] 26,000	30,800	[2] 31,500	23.40	19.20	13.10
Florida	5,020	6,200	10,700	[2] 30,100	[2] 43,400	[2] 64,200	37.62	16.00	16.00
Louisiana	3,060	2,200	4,000	12,700	8,400	[2] 18,000	24.82	21.60	10.60
Texas	24,400	18,100	38,600	[2] 140,100	67,000	[2] 212,300	22.12	8.30	7.00
Total	36,910	30,900	58,550	[2] 208,900	[2]149,600	[2] 326,000	24.61	13.40	9.65
Second early:									
Alabama	1,800	1,800	3,000	10,400	7,200	[2] 20,400	38.02	25.00	5.00
Georgia	400	1,000	800	2,300	4,000	3,200	30.52	24.00	10.00
Mississippi	3,030	3,500	5,800	15,000	13,300	[2] 32,500	33.46	32.50	6.10
North Carolina	770	850	1,300	3,900	3,400	5,200	32.40	26.00	10.00
South Carolina	2,860	1,800	1,200	[2] 26,000	18,900	5,400	34.48	24.00	16.00
Virginia	4,580	4,850	3,300	[2] 21,200	17,800	[2] 15,600	29.32	24.80	11.40
Eastern Shore	1,470	2,000	1,500	[2] 8,200	9,000	[2] 7,500	26.28	26.00	12.50
Norfolk	3,110	2,850	1,800	[2] 13,000	8,800	[2] 8,100	31.40	23.50	10.00
Total	13,440	13,800	15,400	[2] 78,800	64,600	[2] 82,300	33.49	26.18	7.92
Intermediate:									
Arkansas	440	320	250	1,600	1,100	500	21.00	35.00	20.00
Illinois	2,040	2,200	2,400	16,800	10,800	9,800	14.10	26.60	14.50
Iowa	1,650	1,900	2,000	11,300	8,900	6,000	14.08	17.50	17.70
Kentucky	190	210	220	1,200	1,000	1,200	26.80	30.00	22.00
Maryland	2,160	2,330	1,920	11,200	10,700	9,600	25.36	24.50	12.50
Missouri	950	1,000	900	5,700	4,500	2,700	18.86	36.00	26.00
New Jersey	4,340	5,500	6,200	23,100	30,800	32,900	23.00	20.00	13.00
New Mexico	420	250	400	3,100	1,400	2,000	18.80	25.00	18.00
New York, Long Island	2,980	2,650	2,600	28,300	25,400	26,000	20.34	22.00	20.00
Ohio, southeast	800	600	700	[3] 6,200	2,700	3,500	20.96	40.00	24.00
Tennessee	2,300	1,500	1,890	13,600	7,500	12,700	22.50	31.30	13.20

See footnotes at end of table.

TABLE 186.—*Cabbage, commercial crop: Acreage, production, and season average price per ton received by producers, by States; average 1928–32, annual 1933 and 1934*—Continued

FOR MARKET AND SAUERKRAUT—Continued

Group and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*	*Dollars*
Intermediate—Contd.									
Virginia, southwest	2,550	2,500	2,800	14,300	10,000	11,200	18.02	21.30	13.30
Washington	2,000	1,800	2,000	16,900	12,600	16,000	13.88	11.90	11.00
Total [3]	22,820	22,760	24,280	[2] 153,300	127,400	134,100	18.91	22.38	15.18
Late (domestic):									
Colorado	1,550	1,500	1,700	[2] 15,800	16,500	13,800	13.30	18.90	20.80
Indiana	2,580	2,800	3,400	18,900	12,900	20,400	9.56	13.80	7.60
Michigan	3,230	2,800	3,600	23,800	16,500	28,800	7.46	18.40	6.50
Minnesota	1,100	1,000	1,000	8,200	6,200	6,200	9.14	15.60	11.50
New York	10,140	8,000	9,700	[2] 90,100	52,000	97,000	10.12	13.80	5.60
Ohio	2,860	2,260	3,000	23,200	8,400	26,400	6.98	10.00	6.30
Oregon	1,590	2,000	1,700	12,100	14,000	14,400	16.68	13.40	12.70
Pennsylvania	1,130	1,050	1,000	9,600	7,200	8,000	15.22	19.30	12.70
Utah	430	400	450	5,800	4,000	5,500	10.78	12.20	9.80
Wisconsin	10,520	7,200	13,000	81,000	43,900	101,400	8.18	13.80	7.70
Total [3]	35,130	29,010	38,550	[2] 288,500	181,600	321,900	9.54	14.78	7.86
Late (Danish): [4]									
Colorado	2,060	1,960	2,000	24,400	22,700	17,000	11.80	15.00	17.50
Indiana	[5] 300	400	400	[5] 2,100	2,000	2,800	[5] 13.60	21.00	9.00
Michigan	530	700	900	4,000	3,800	7,600	13.50	23.00	7.00
Minnesota	1,940	1,760	1,500	11,800	8,800	10,500	13.34	17.50	9.00
New York	20,460	16,800	21,350	[2] 163,700	122,600	209,200	12.40	16.90	4.00
Ohio	430	480	600	2,900	2,800	4,500	13.86	18.00	8.50
Pennsylvania	650	500	600	4,800	3,900	4,800	14.78	16.00	9.00
Wisconsin	8,290	5,000	10,000	61,700	32,500	85,000	11.36	17.00	7.00
Total [3]	34,630	27,600	37,350	[2] 275,000	199,100	341,400	11.99	16.87	5.81
Grand total [3]	143,740	125,370	175,130	[2] 1,010,400	727,700	1,213,300	16.16	17.42	8.64

FOR SAUERKRAUT [6]

New York	6,220	6,900	7,200	55,700	45,500	73,400	7.70	13.40	5.90
Ohio	2,510	1,800	2,580	20,000	6,100	23,500	6.20	7.10	5.60
Indiana	1,500	1,600	2,600	10,300	6,400	14,800	6.80	7.90	6.60
Illinois	630	600	860	4,600	2,700	4,000	10.40	16.10	10.00
Michigan	1,530	700	1,280	11,500	3,900	11,000	6.40	6.80	5.70
Wisconsin	5,200	3,000	6,600	42,200	18,900	50,800	7.60	9.50	6.30
Minnesota	410	150	350	3,400	800	2,500	6.60	6.20	6.40
Colorado	390	200	420	4,400	2,200	2,700	7.90	12.00	15.80
Washington	260	200	300	2,300	1,800	2,100	11.20	11.00	9.60
Other States [7]	1,590	1,290	1,870	11,300	7,100	12,600	9.56	9.01	6.98
Total	20,240	16,440	24,060	165,700	95,400	197,400	7.53	11.21	6.35

[1] Season begins in fall of previous year.

[2] Includes some quantities not harvested on account of market conditions; California, 7,500 tons in 1931, and 6,500 in 1934; Florida, 7,100 tons in 1931, 6,500 in 1933, and 21,400 in 1934; Louisiana, 2,000 tons in 1934; Texas, 37,500 tons in 1931, and 70,500 in 1934; Alabama, 4,200 tons in 1934; Mississippi, 4,700 tons in 1934; South Carolina, 10,200 tons in 1931; Virginia, Eastern Shore, 1,400 tons and Norfolk section, 5,000 tons in 1931, Eastern Shore, 1,500 tons and Norfolk section, 3,500 tons in 1934; Ohio (southeast), 2,200 tons in 1931; Colorado, 4,000 tons of domestic and 8,300 of Danish in 1932; New York, domestic, 12,000 tons in 1932. Price refers to harvested portion of crop.

[3] Includes quantities used by sauerkraut manufacturers.

[4] Average price for late Danish crop is computed only to Dec. 1.

[5] Short-time average.

[6] All these figures are included in upper portion of this table but are segregated here for convenient reference.

[7] Other States includes Iowa, Maryland, New Jersey, North Carolina, Oregon, Pennsylvania, Tennessee, Texas, Utah, and Virginia.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and sauerkraut manufacturers.

TABLE 187.—*Cabbage: Car-lot shipments, by State of origin, 1923–33*

State	Crop-movement season [1]										
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	9,086	11,816	12,545	12,898	14,080	8,636	10,609	11,917	12,014	9,778	5,614
Pennsylvania	317	409	552	523	420	252	302	216	194	88	173
Ohio	538	658	414	544	765	581	555	66	484	126	105
Illinois	289	279	198	195	193	329	296	355	188	390	71
Michigan	732	644	573	287	375	428	256	153	137	329	85
Wisconsin	6,415	4,955	5,409	5,177	4,547	6,412	5,395	5,959	3,156	3,292	2,272
Minnesota	989	1,552	873	1,125	1,009	1,493	1,200	683	493	778	692
Iowa	390	541	265	459	435	566	442	504	184	425	169
Maryland	220	509	238	166	293	266	428	67	75	70	163
Virginia	3,326	3,400	2,225	1,814	2,720	2,444	3,969	1,772	1,821	1,050	1,535
North Carolina	364	275	356	341	292	254	261	214	189	58	127
South Carolina	4,299	1,530	3,421	2,671	1,900	2,209	2,549	2,731	1,864	934	1,701
Georgia	108	50	91	66	58	14	117	5	6	68	201
Florida	1,172	3,842	1,936	1,667	1,051	1,168	3,136	2,271	3,261	1,521	2,873
Tennessee	270	348	317	609	667	823	1,256	952	330	316	506
Alabama	1,564	908	1,270	1,586	1,803	861	857	676	1,166	817	583
Mississippi	1,134	605	674	990	710	1,249	1,689	931	1,148	718	796
Louisiana	456	103	644	331	592	592	549	265	616	485	286
Texas	1,356	7,281	4,048	6,093	5,546	7,242	7,905	5,347	8,916	5,225	2,997
Colorado	3,174	1,473	1,432	1,274	683	1,162	810	1,164	602	464	497
Washington	155	52	103	154	139	82	168	85	108	49	161
Oregon	9	86	170	47	47	65	43	27	78	-------	300
California	684	364	650	663	360	798	512	837	243	836	599
Other States	441	401	620	698	646	801	827	1,007	627	325	415
Total	37,488	42,081	39,024	40,378	39,331	38,727	44,131	38,204	37,900	29,142	22,921

[1] Crop-movement season covers 17 months, from December through the second following April; i. e., the 1923 season begins December 1922 and ends April 1924. Figures for certain States include shipments for month preceding or following the regular crop-movement season.

[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 188.—*Cantaloups*: [1] *Car-lot shipments, by State of origin, 1923–34*

State	Crop-movement season [2]										
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [3]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Indiana	681	822	1,089	629	415	465	389	184	278	239	136	278
Michigan	306	114	146	84	77	52	16	13	16	13	29	4
Delaware	818	511	657	551	427	427	285	193	233	190	172	194
Maryland	1,270	699	1,116	1,283	1,159	1,002	561	274	347	264	116	120
North Carolina	620	401	655	401	606	304	88	19	110	180	178	200
South Carolina	70	116	33	173	179	94	44	125	89	224	319	119
Georgia	217	586	117	136	108	104	76	138	83	83	120	88
Arkansas	337	1,052	1,245	1,127	788	854	413	245	443	541	119	163
Texas	387	456	498	514	242	244	176	358	758	583	399	373
Colorado	2,306	3,229	3,837	5,108	3,980	2,789	4,664	4,088	2,790	2,555	2,520	922
New Mexico	364	518	574	640	415	370	352	416	612	560	234	198
Arizona	1,208	2,145	3,833	3,712	5,217	5,901	5,457	5,834	4,542	3,109	1,922	2,469
Washington	207	298	221	145	252	258	382	282	150	105	36	46
California	16,486	19,930	18,707	18,320	22,406	25,307	26,850	23,626	25,707	17,269	12,602	13,827
Other States	646	617	1,091	601	486	523	289	384	424	407	252	277
Total	25,923	31,494	33,819	33,424	36,757	38,694	40,042	36,179	36,582	26,322	19,154	19,278

[1] Includes Honey Ball, Honey Dew, Casaba, and Persian melons. Melons other than cantaloups were not reported separately until 1923. Shipments are as follows: 1923, 1,152 cars; 1924, 2,565 cars; 1925, 3,654 cars; 1926, 6,484 cars; 1927, 6,516 cars; 1928, 9,719 cars; 1929, 11,894 cars; 1930, 12,352 cars; 1931, 12,207 cars; 1932, 9,107 cars; 1933, 6,605 cars; and 1934, 6,976 cars.

[2] Crop-movement season extends from April through November of a given year. Figures for California include shipments in December, following the regular crop-movement season.

[3] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included

TABLE 189.—*Cantaloups,*[1] *commercial crop: Acreage, production, and season average price per crate received by producers, by States; average 1928–32, annual 1933 and 1934*

Group and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 crates* [2]	*1,000 crates* [3]	*1,000 crates* [2]	*Dollars*	*Dollars*	*Dollars*
Early:									
California, Imperial	44,020	35,540	27,900	[3] 6,588	[3] 4,052	4,464	1.37	1.16	1.41
Florida	510	400	300	26	24	18	1.65	1.00	1.20
Texas	570	-------	-------	55	-------	-------	1.65	-------	-------
Total	45,100	35,940	28,200	[3] 6,669	[3] 4,076	4,482	1.37	1.16	1.41
Second early:									
Arizona	12,900	8,100	5,700	[3] 1,863	[3] 1,134	855	.95	.40	1.30
Arkansas	3,280	2,500	2,550	231	112	120	.89	.75	.90
California, other	15,050	10,000	9,750	[3] 2,726	1,540	1,736	.90	.75	.87
Georgia	780	1,200	2,400	62	102	120	1.15	.80	1.00
Nevada	180	100	150	24	9	14	1.04	.75	1.35
North Carolina	1,530	2,800	3,600	133	224	216	.93	.80	.55
Oklahoma	520	600	650	40	45	29	.89	.70	.80
South Carolina	990	2,500	1,800	99	[3] 225	90	1.00	.45	.60
Texas, other	4,840	2,900	4,800	[3] 329	218	264	.76	.75	1.00
Total	40,070	30,700	31,400	[3] 5,507	[3] 3,609	3,444	.91	.66	.97
Intermediate:									
Delaware	2,360	3,000	3,090	256	360	433	1.01	.75	.90
Illinois	960	1,200	1,100	86	108	77	1.29	.40	.50
Indiana	4,490	5,300	5,800	428	450	609	1.27	.35	.85
Maryland	7,100	7,700	7,400	631	847	962	1.16	.50	.90
New Mexico	2,050	2,000	1,300	[3] 255	[3] 220	143	1.11	.35	1.40
Tennessee	240	240	300	18	18	21	1.28	.75	.90
Washington	1,760	1,650	2,000	218	223	250	.78	.45	.85
Total	18,960	21,090	20,990	[3] 1,892	[3] 2,226	2,495	1.12	.55	.90
Late:									
Colorado	9,090	8,820	3,050	1,588	1,499	336	.90	.55	.90
Iowa	680	1,100	700	60	88	47	1.10	.60	1.20
Kansas	450	450	200	51	47	12	.85	.55	.80
Michigan	3,680	4,600	4,830	387	506	435	1.32	.85	1.15
Nevada	270	50	40	33	4	3	1.24	.95	.87
New Jersey	3,520	4,750	5,000	438	499	340	1.02	.90	1.20
Ohio	[4] 460	700	800	[4] 49	63	80	[4] 1.37	1.10	1.30
Oregon	[4] 680	600	600	[4] 100	108	84	[4] .90	.55	1.00
Utah	[4] 480	250	350	[4] 48	34	57	[4] .48	.55	.95
Total	18,790	21,320	15,570	2,695	2,848	1,394	.98	.68	1.09
Grand total	122,920	109,050	96,160	[3] 16,763	[3] 12,759	11,815	1.13	.80	1.13

[1] Includes Honey Ball, Honey Dew, Casaba, and Persian melons not separately reported.
[2] Standard crates (45's) containing approximately 60 pounds.
[3] Includes some quantities not harvested on account of market conditions: Arizona, 360,000 crates in 1932 and 414,000 in 1933; California, Imperial, 1,693,000 crates in 1932 and 357,000 in 1933 and other, 758,000 crates in 1932; Texas, other, 433,000 crates in 1931 and 182,000 in 1932; New Mexico, 109,000 crates in 1932 and 55,000 in 1933; South Carolina, 37,000 crates in 1933. Price refers to harvested portion of crop.
[4] Short-time average.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 190.—*Carrots, commercial crop for market:* [1] *Acreage, production, and season average price per bushel received by producers, average 1928–32 annual 1933 and 1934*

Marketing season	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels* [2]	*1,000 bushels* [2]	*1,000 bushels* [2]	*Dollars*	*Dollars*	*Dollars*
Fall	3,280	5,030	5,800	1,831	2,485	2,842	0.69	0.54	0.59
Early	8,470	11,300	10,770	[3] 1,840	1,573	1,363	.44	.18	.22
Second early	8,550	8,770	11,030	[3] 3,432	3,637	5,223	.64	.58	.54
Intermediate	1,880	1,650	1,950	[3] 488	458	668	.83	.72	.50
Late [4]	5,400	5,840	6,330	[3] 2,536	2,482	2,909	.53	.39	.44
Total	27,580	32,590	35,880	[3] 10,127	10,635	13,005	.59	.47	.50

[1] Including undetermined quantities used for canning in some States.
[2] Bushels containing approximately 50 pounds.
[3] Includes some quantities not harvested on account of market conditions: 300,000 bushels in 1929; 44,000 in 1930; 1,634,000 in 1931; and 375,000 in 1932. Price refers to harvested portion of crop.
[4] Average price for late States is computed only to Dec. 1.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 191.—*Carrots: Car-lot shipments, by State of origin, 1923–33*

State	Crop-movement season [1]										
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	1,410	2,262	1,825	1,845	2,430	1,484	2,111	2,188	1,882	1,537	1,427
Illinois	24	3	23	2	13	96	33	37	38	14	5
Michigan	35	55	54	77	91	208	204	141	319	92	153
Minnesota	8	5	59	84	80	59	123	62	18	32	70
Virginia	2	1	40	10	44	137	110	67	47	6	2
Mississippi	142	266	197	209	496	230	108	28	12	7	5
Louisiana	58	32	106	70	177	99	71	84	41	17	10
Texas	65	282	575	1,136	903	1,685	2,860	2,145	1,181	1,492	1,110
Colorado	12	26	29	62	10	216	96	43	44	3	49
Arizona				11	11	9	108	157	254	310	306
Washington	21	11	8	30	10	96	23	14	88	42	60
California	24	157	278	557	2,363	2,938	6,095	7,206	7,403	6,317	6,332
Other States	178	214	233	211	225	198	207	220	187	96	42
Total	1,979	3,314	3,427	4,304	6,853	7,455	12,149	12,392	11,514	9,965	9,571

[1] Crop-movement season covers 21 months, beginning in October of the previous year in such early shipping States as California, Louisiana, and Texas, and extending through June of the following year, i. e., the 1923 season begins in October 1922, and ends in June 1924, in order to include shipments from storage in Northern States and to have season comparable with acreage and production.

[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 192.—*Cauliflower, commercial crop: Acreage, production, and season average price per crate received by producers, average 1928–32, annual 1933 and 1934*

Marketing season	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 Crates* [1]	*1,000 Crates* [1]	*1,000 Crates* [1]	*Dollars*	*Dollars*	*Dollars*
Fall and winter	7,990	11,000	11,130	2,261	[2] 2,696	2,570	0.74	0.57	0.48
Early	8,630	7,250	6,540	2,235	1,870	1,455	.80	.52	.58
Late	10,830	11,900	10,880	[2] 2,162	2,434	2,596	.90	.72	.72
Total	27,450	30,150	28,550	[2] 6,658	[2] 7,000	6,621	.81	.61	.60

[1] Crates containing approximately 39 pounds (1½ bushels).

[2] Includes some quantities not harvested on account of market conditions: 176,000 crates in 1932 and 160,000 in 1933. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 193.—*Celery, commercial crop: Acreage, production, and season average price per crate received by producers, average 1928–32, annual 1933 and 1934*

Marketing season	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 Crates* [1]	*1,000 Crates* [1]	*1,000 Crates* [1]	*Dollars*	*Dollars*	*Dollars*
Fall and winter	7,180	3,500	5,800	1,240	693	1,114	1.18	1.19	1.10
Early	7,620	8,830	7,850	2,716	[2] 2,621	2,501	2.18	1.15	1.46
Second early	1,000	1,500	1,200	[2] 590	644	335	1.66	1.98	1.93
Intermediate	3,710	3,780	3,920	1,014	902	951	1.62	1.07	1.32
Late (sec. 1) [3]	11,650	12,100	11,940	[2] 3,348	3,345	3,220	1.27	1.28	.95
Late (sec. 2) [3]	1,460	1,540	1,490	443	419	496	1.35	1.32	1.25
Total	32,620	31,250	32,200	[2] 9,351	[2] 8,624	8,617	1.58	1.27	1.21

[1] Two-thirds size (New York) crates, containing approximately 90 pounds.

[2] Includes some quantities not harvested on account of market conditions: 249,000 crates in 1932, and 197,000 in 1933. Price refers to harvested portion of crop.

[3] Average price for late States computed only to Dec. 1.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 194.—*Celery: Car-lot shipments, by State of origin, 1923–33*

State	Crop-movement season [1]										
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	3,742	4,529	4,492	4,898	5,893	4,192	3,847	5,451	3,875	4,688	2,529
New Jersey	219	177	149	138	106	32	53	32	25	32	26
Pennsylvania	223	225	208	194	169	71	105	81	61	36	15
Michigan	1,486	1,332	2,224	1,880	1,997	2,139	1,852	1,606	1,304	861	877
Florida	6,398	7,219	7,952	5,504	7,499	8,413	8,831	9,838	8,245	7,931	6,987
Idaho	49	48	29	19	46	121	262	287	97	99	63
Colorado	125	197	399	211	161	188	149	136	53	80	39
Oregon	205	363	398	511	625	605	673	647	622	412	421
California	4,419	4,748	4,554	6,226	7,696	8,384	9,580	8,480	8,358	7,834	5,922
Other States	82	99	109	80	125	135	138	69	100	82	93
Total	16,948	18,937	20,514	19,661	24,317	24,280	25,490	26,627	22,740	22,055	16,972

[1] Crop-movement season covers 20 months, from September through the second following April; i. e., the 1923 season begins September 1922, and ends April 1924.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 195.—*Cherries: Production in 12 States [1] and average price per ton received by producers, average 1927–31, and annual 1933 and 1934*

State	Production			Price for crop of—		State	Production			Price for crop of—	
	Average, 1927–31	1933	1934 [2]	1933	1934 [2]		Average, 1927–31	1933	1934 [2]	1933	1934 [2]
	Short tons	*Short tons*	*Short tons*	*Dollars*	*Dollars*		*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*
New York	[3] 15,354	10,754	19,220	60	50	Idaho	2,740	3,160	2,982	50	65
Sweet	-------	1,398	1,160	-------	-------	Colorado	3,450	1,976	5,920	54	45
Sour	-------	9,356	18,060	-------	-------	Utah	3,500	3,078	3,850	65	55
Pennsylvania	[4] 6,587	4,375	6,344	55	40	Washington	11,170	16,330	13,500	50	75
Ohio	[4] 3,073	2,806	3,660	55	40	Oregon	10,368	15,000	9,620	50	75
Michigan	18,252	27,300	26,560	55	50	California	[3] 17,460	[3] 24,900	16,700	66	89
Wisconsin	5,840	7,040	4,400	50	50						
Montana	470	735	750	55	70	12 States	[3] 94,400	[3] 117,454	113,506	56.22	60.38

[1] Estimates include only certain States where total production can be calculated from commercial sales (shipments, canning, cold pack, etc.) and differ from previously published commercial estimates for some States by an increased allowance for farm and local use.
[2] Preliminary.
[3] Includes some quantities not harvested on account of price as follows: New York, 1931, 2,550 tons; California, 1931, 3,000 tons, 1933, 500 tons. Prices and value are computed on the harvested crop.
[4] 3-year average.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. Estimates of production for 1929–33 revised on basis of 1930 census. Earlier years not so revised.

TABLE 196.—*Citrus fruit production and average price per box received by producers, by States, 1899, 1909, and 1919–34* [1]

Year	Oranges [2]															
	Total production								Price per box [3]							
	California	Florida [4]	Texas	Arizona	Alabama [5]	Louisiana	Mississippi	7 States	California	Florida	Texas	Arizona	Alabama	Louisiana	Mississippi	7 States
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1899 [6]	5,882	273	------	11	(7)	1	------	6,167	------	------	------	------	------	------	------	------
1909 [6]	14,440	4,888	11	33	1	152	5	19,530	------	------	------	------	------	------	------	------
1919	15,528	7,533	9	80	20	37	31	23,238	2.75	4.05	------	------	------	------	------	------
1920	22,547	9,457	------	60	82	42	25	32,213	2.18	2.48	------	------	------	------	------	------
1921	13,921	8,871	------	80	82	50	30	23,034	2.80	3.65	------	------	------	------	------	------
1922	21,286	10,897	4	81	190	60	45	32,563	2.00	2.85	------	------	------	------	------	------
1923	24,324	13,262	6	86	225	75	55	38,033	2.00	1.80	------	------	------	------	------	------
1924	18,535	11,639	12	60	2	75	------	30,323	3.55	3.18	2.00	3.50	4.00	2.20	------	3.40
1925	24,200	10,344	10	86	130	100	27	34,897	2.84	3.03	2.50	3.00	3.00	2.70	3.00	2.90
1926	28,167	11,512	41	75	75	150	42	40,062	3.05	2.41	2.50	3.10	3.00	2.60	3.00	2.86
1927	22,737	9,933	70	54	110	200	50	33,154	4.00	3.60	1.90	4.00	4.00	4.00	4.00	3.88
1928	38,994	15,116	115	99	85	220	30	54,659	2.05	1.83	1.55	3.30	3.00	3.00	3.00	2.00
1929	21,483	10,304	261	137	212	187	37	32,621	3.90	2.92	2.10	3.80	2.50	3.35	2.55	3.56
1930	35,470	19,211	250	139	3	195	2	55,270	1.50	1.90	1.55	1.50	2.00	2.05	2.00	1.64
1931	34,900	14,220	520	145	80	245	54	50,164	1.10	1.90	1.05	1.25	1.75	1.75	1.75	1.33
1932	34,265	16,200	315	147	120	241	80	51,368	1.00	1.28	1.35	.95	1.60	1.25	1.60	1.09
1933	[8]28,439	18,100	390	143	3	212	2	[8]47,289	1.66	1.51	1.00	1.40	1.85	1.00	1.85	1.59
1934 [9]	41,565	15,500	595	170	140	293	88	58,351	1.80	1.55	1.05	1.50	1.15	1.25	1.30	1.72

Year	Grapefruit										Lemons		Limes	
	Total production					Price per box [3]					Production	Price per box [3]	Production	Price per box [3]
	Florida [4]	California	Texas	Arizona	4 States	Florida	California	Texas	Arizona	4 States	California	California	Florida	Florida
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*1,000 boxes*	*Dollars*	*1,000 boxes*	*Dollars*
1899 [6]	12	18	------	1	31	------	------	------	------	------	874	------	------	------
1909 [6]	1,062	123	(7)	1	1,186	------	------	------	------	------	2,756	------	11	------
1919	5,898	363	3	29	6,293	------	------	------	------	------	3,499	2.00	28	3.45
1920	6,142	395	------	34	6,571	------	------	------	------	------	4,955	2.92	26	3.10
1921	6,644	360	------	35	7,039	------	------	------	------	------	4,050	3.45	33	2.75
1922	7,766	394	35	60	8,255	------	------	------	------	------	3,400	3.30	35	2.90
1923	8,936	363	65	95	9,459	------	------	------	------	------	6,732	1.60	40	3.00
1924	8,760	387	211	105	9,463	1.61	3.55	2.00	3.50	1.72	5,125	3.48	36	3.00
1925	8,316	600	200	150	9,266	2.75	2.84	2.50	3.00	2.75	7,316	2.11	30	4.00
1926	8,693	672	361	120	9,846	1.94	2.35	2.50	2.50	2.00	7,712	2.81	12	6.50
1927	8,158	720	524	176	9,578	2.88	3.80	1.90	3.80	2.91	6,000	3.80	0	------
1928	11,314	972	753	211	13,250	1.65	2.50	1.60	3.50	1.74	7,900	2.60	6	4.50
1929	8,274	1,000	1,530	365	11,169	2.44	2.65	2.15	2.50	2.42	5,900	3.70	8	5.50
1930	16,109	1,290	1,135	400	18,934	1.20	1.25	1.15	1.50	1.21	7,950	2.35	8	5.00
1931	10,786	1,431	2,480	450	15,147	1.19	1.00	.55	.90	1.06	7,800	1.95	9	4.50
1932	11,800	1,350	1,385	614	15,149	.81	.85	1.10	.75	.84	6,704	2.10	10	4.00
1933	10,700	1,713	1,130	700	14,243	1.17	1.10	.90	.80	1.12	7,295	2.35	8	3.00
1934 [9]	12,500	1,788	2,720	1,240	18,248	.91	1.10	.85	.85	.92	7,500	2.30	8	3.50

[1] Estimates of production include fruit consumed on farms, sold locally, and used for manufacturing purposes, as well as that shipped. Fruit ripened on the trees but destroyed by freezing or storms prior to picking is not included. The estimates cover the crop produced from the bloom of the year shown. In California, where picking continues throughout the year, the estimates are for 12-month periods beginning Nov. 1. In other States the season begins about Sept. 1.

[2] Includes tangerines.

[3] Season average prices, 1919–33; season average price to Dec. 1, 1934. California prices are for naked fruit at the packing-house door; Florida prices are for packed boxes minus selling charges on the commercial crop so handled and bulk prices for other commercial and noncommercial marketings; Florida lime prices, 1919–23, are Dec. 1 prices.

[4] From prospects on Apr. 1, 1935, commercial shipments of Florida citrus fruits from the 1934 crop were estimated at 14,000,000 boxes of oranges and 7,500,000 boxes of grapefruit compared with 16,500,000 boxes of oranges and 7,500,000 boxes of grapefruit shipped from the 1933 crop. Commercial estimates and forecasts represent out-of-State shipment, whether by rail, boat, or auto truck.

[5] For years 1919–34, equivalent in standard boxes, each equal to about 2 of the "half straps" commonly used.

[6] Census. Size of boxes not specified.

[7] 500 boxes or less.

[8] Includes 977,000 boxes of oranges for charity which are excluded in computing value.

[9] As estimated from prospects on Apr. 1, 1935, except for lemons and limes which are based on Dec. 1 prospects.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text.

TABLE 197.—*Citrus fruit: Car-lot shipments, by State of origin, 1923–24 to 1933–34*

ORANGES [1]

State	Crop movement season [2]										
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34 [3]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
California	44,905	34,439	47,017	53,511	43,693	68,797	43,053	64,774	61,615	56,230	53,243
Florida	33,431	25,091	19,625	22,536	16,453	32,550	17,312	33,915	22,769	30,017	30,232
Alabama	600	2	338	179	312	97	485	2	175	227	
Mississippi	13		8	4	15	5	25	1	40	48	1
Louisiana	3	2	1	1	251	264	278	155	84	85	45
Texas	3	3	6	9	26	33	156	119	200	102	64
Arizona	94	45	96	73	33	66	90	90	66	106	126
Georgia											3
Total	79,049	59,582	67,091	76,313	60,783	101,812	61,399	99,056	84,949	86,815	83,714

GRAPEFRUIT

Florida	19,614	20,087	14,269	17,304	14,166	21,844	13,955	26,081	17,661	17,329	14,929
Texas	99	521	298	747	1,036	1,617	3,493	2,247	5,329	2,679	1,611
California	446	431	558	593	780	780	1,194	1,220	1,651	1,034	2,194
Arizona	155	159	218	210	211	272	417	436	296	407	909
Louisiana							1	2			
Total	20,314	21,198	15,343	18,854	16,193	24,513	19,060	29,986	24,937	21,449	19,643

LEMONS

California	13,388	11,680	13,981	13,529	12,745	17,181	13,564	18,377	15,710	14,702	16,974
Texas	1	[4] 2									
Arizona	2	1	1				2	1	2	2	1
Total	13,391	11,683	13,982	13,529	12,745	17,181	13,566	18,378	15,712	14,704	16,975

MIXED CITRUS

Florida	3,608	4,226	3,565	5,313	6,225	9,109	8,216	14,687	8,825	8,393	7,938
California	1,424	1,148	1,605	1,639	1,590	1,783	1,343	1,626	1,666	1,703	1,750
Texas	1	18		22	92	185	501	288	520	275	124
Arizona		10	1	10	11	24	48	29	16	1	16
Louisiana					1	1	10	155	87	108	113
Total	5,033	5,402	5,171	6,984	7,919	11,102	10,118	16,785	11,114	10,480	9,941

[1] Includes tangerines and satsumas.
[2] Crop movement season extends as follows: California, from Nov. 1 through October of the following year; all other States from Sept. 1 through August of the following year, except lemons from Nov. 1 through October of the following year
[3] Preliminary
[4] Reported in October 1924.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 198.—*Grapefruit, Florida: Weighted average auction price per box Chicago and New York, by months, 1925–26 to 1934–35*

Market and year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average [1]
Chicago:													
1930–31	$3.54	$3.21	$2.82	$2.56	$2.59	$2.45	$2.49	$2.53	$2.36	$2.08	$1.70	------	$2.60
1931–32	4.14	3.05	2.47	2.21	2.17	2.11	2.26	2.99	3.70	3.34	------	------	2.63
1932–33	4.83	3.56	2.92	2.43	2.37	2.37	2.30	2.03	1.99	2.12	1.71	$1.79	2.31
1933–34	2.90	2.60	2.40	2.41	2.23	2.31	2.54	2.78	2.65	2.81	2.03	------	2.52
1934–35	3.01	2.40	2.29	1.93	------	------	------	------	------	------	------	------	------
New York:													
1925–26	------	4.96	3.97	3.95	4.01	4.03	4.61	5.16	4.70	4.74	5.51	------	4.38
1926–27	------	5.35	4.07	3.40	3.58	3.75	3.67	3.59	3.66	3.80	2.44	------	3.66
1927–28	------	4.60	4.70	4.71	4.82	5.07	5.52	5.45	4.92	3.93	6.28	4.51	4.93
1928–29	------	4.41	4.25	3.44	3.52	3.20	3.30	3.32	3.83	4.71	6.36	------	3.70
1929–30	5.80	4.51	4.23	4.26	4.43	4.09	4.78	5.09	4.25	3.24	3.10	------	4.42
1930–31	4.03	3.64	3.00	2.82	2.56	2.43	2.50	2.76	2.57	2.06	1.17	------	2.69
1931–32	4.32	3.09	2.60	2.26	2.14	1.97	2.23	2.76	3.44	3.76	3.12	------	2.53
1932–33	3.61	3.65	3.01	2.28	2.24	2.04	1.83	1.72	1.71	1.54	1.55	1.92	[2] 2.04
1933–34	3.12	2.62	2.24	2.33	2.20	2.23	2.46	2.60	2.49	3.05	4.32	------	2.41
1934–35	3.09	2.15	2.11	1.94	------	------	------	------	------	------	------	------	------

[1] Where months are missing, average is for months shown.
[2] Includes an average in September 1933 of $2.

Bureau of Agricultural Economics.
Compiled as follows: Chicago, Chicago Fruit and Vegetable Reporter. New York, reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold. These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 199.—*Grapefruit: Fresh fruit produced and quantity canned in Florida, and receipts of canned grapefruit from Puerto Rico, 1921–22 to 1933–34*

Season	Florida pack, canned fruit			Total Florida production, fresh fruit	United States receipts of canned fruit from Puerto Rico [1]			
					Grapefruit hearts		Grapefruit juice	
	Grapefruit hearts	Grapefruit juice	Total pack					
	Cases [2]	*Cases* [2]	*Cases* [2]	*Boxes*	*Pounds*	*Equivalent cases* [2]	*Gallons*	*Equivalent cases* [2]
1921–22	10,000	----------	10,000	6,644,000	----------	----------	----------	----------
1922–23	150,000	----------	150,000	7,766,000	----------	----------	----------	----------
1923–24	200,000	----------	200,000	8,936,000	3,861,555	128,718	----------	----------
1924–25	350,000	----------	350,000	8,760,000	3,840,819	128,027	----------	----------
1925–26	400,000	----------	400,000	8,316,000	6,348,020	211,601	----------	----------
1926–27	700,000	----------	700,000	8,693,000	9,262,394	308,746	----------	----------
1927–28	600,000	----------	600,000	8,158,000	10,733,709	357,790	----------	----------
1928–29	957,000	205,000	1,162,000	11,314,000	2,832,310	94,410	----------	----------
1929–30	1,316,738	173,934	1,490,672	8,274,000	12,415,247	413,842	----------	----------
1930–31	2,712,489	412,066	3,124,555	16,109,000	5,931,578	197,719	15,574	4,615
1931–32	907,323	247,652	1,154,975	10,786,000	4,483,485	149,450	3,948	1,170
1932–33	2,161,975	725,967	2,887,942	11,800,000	1,289,574	42,986	9,194	2,724
1933–34	2,184,577	610,115	2,794,692	10,700,000	4,410,944	147,031	15,055	4,461

[1] Year beginning July; reports of Bureau of Foreign and Domestic Commerce.
[2] Cases on basis of 24 No. 2 cans.

Bureau of Agricultural Economics.
Figures on the Florida pack of canned grapefruit were obtained as follows: 1921–22 to 1927–28, averages of various trade estimates; 1928–29, estimated by the Florida Grapefruit Canners Association; 1929–30 to 1933–34, complete surveys made by the Bureau of Foreign and Domestic Commerce. A box of fresh fruit in Florida is estimated to pack slightly more than a case of canned fruit.
Some grapefruit also is canned in Texas, Arizona, and California. In 1932–33 Arizona packed 700 cases of grapefruit hearts and 3,200 cases of juice. In 1933–34 the Arizona pack was 570 cases of hearts and 5,900 cases of juice, besides 68,000 gallons of juice in barrels, equivalent to 20,000 cases of 24 No. 2 cans.
Considerable quantities are exported from the United States; domestic exports for the fiscal year 1933–34 were 31,898,086 pounds or the equivalent of 1,063,270 cases. Puerto Rico also ships to foreign countries.

TABLE 200.—*Lemons, California: Weighted average auction price per box, Chicago and New York, by months, 1925–26 to 1934–35*

Market and year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Average
Chicago:													
1930–31	$4.52	$4.44	$5.00	$4.00	$4.29	$3.75	$4.00	$6.83	$6.37	$6.71	$7.75	$6.03	$5.64
1931–32	3.84	4.00	3.95	4.03	3.91	3.33	4.57	4.53	5.86	6.58	8.45	8.74	5.11
1932–33	5.31	5.06	4.71	3.92	4.30	4.00	4.97	5.79	4.24	4.14	4.62	4.78	4.81
1933–34	4.10	4.84	4.72	4.35	4.60	4.03	5.04	5.62	5.86	4.72	4.09	4.85	4.99
1934–35	4.45	4.03											
New York:													
1925–26	4.13	4.46	3.91	4.16	5.40	4.12	4.83	3.79	4.83	4.38	3.56	4.50	4.35
1926–27	3.82	4.03	4.20	3.43	3.90	3.50	3.89	4.50	6.44	6.37	8.82	9.27	4.64
1927–28	6.92	6.13	6.33	6.03	5.19	5.54	6.42	6.04	6.97	6.11	5.59	5.19	6.07
1928–29	4.90	5.62	5.26	3.95	4.07	4.55	3.82	6.89	5.39	7.82	11.87	11.22	5.82
1929–30	8.70	8.63	5.68	5.06	4.81	5.51	7.24	6.15	7.26	7.93	5.36	4.23	6.42
1930–31	4.18	4.52	4.89	4.08	4.47	4.06	4.43	5.05	6.57	6.55	7.28	5.66	5.30
1931–32	3.98	4.04	3.87	3.81	3.80	3.27	4.96	4.47	5.16	7.03	8.56	8.48	5.09
1932–33	5.40	5.12	4.80	3.47	3.89	3.99	4.95	5.81	4.35	4.36	4.40	4.86	4.71
1933–34	3.95	4.24	4.73	4.35	4.60	4.19	4.89	5.71	5.47	4.82	3.84	4.35	4.75
1934–35	4.37	3.97											

Bureau of Agricultural Economics.

Compiled as follows: Chicago, Chicago Fruit and Vegetable Reporter. New York, reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold. These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 201.—*Oranges, California, Valencia: Weighted average auction price per box, Chicago and New York, by months, 1925–34*

Market and season	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average for season [1]
Chicago:										
1925							$8.38	$7.91		
1926		$1.46	$4.37	$4.97	$4.48	$5.45	6.36	6.04		$5.04
1927		4.42	4.90	5.48	5.96	6.70	6.81	6.50		5.59
1928		7.16	6.40	7.36	7.15	7.50	7.17			7.11
1929			4.08	3.87	4.45	4.36	4.57			4.23
1930	$5.83	7.40	7.04	7.08	7.17	7.57	8.49	6.85		7.33
1931		3.31	3.57	3.96	3.55	3.78	4.26	3.53	$3.23	3.75
1932	2.72	3.29	3.10	3.35	2.96	3.25	3.34	3.59	3.19	[2] 3.24
1933			2.86	3.10	3.15	3.35	3.31	2.81	2.13	[3] 3.01
1934		3.88	4.40	3.97	3.99	3.84	4.56	4.40		4.16
New York:										
1925	4.80	6.28	7.43	6.40	6.47	7.58	8.23	9.90		7.15
1926	4.92	4.58	4.46	5.21	4.89	5.39	6.44	6.79	6.69	5.28
1927	4.66	4.43	4.98	5.90	6.15	6.73	7.02	6.71	5.75	6.00
1928	5.94	7.38	7.22	7.58	7.45	7.77	7.53	6.79		7.45
1929	4.09	4.40	4.58	4.13	4.85	4.73	4.85	4.77	4.85	4.63
1930	6.59	7.97	7.19	7.36	7.33	7.29	8.69	7.78		7.59
1931		3.42	3.62	4.31	3.81	3.86	4.50	3.79	2.98	3.97
1932	2.85	3.43	3.28	3.62	3.05	3.42	3.43	3.77	4.07	3.41
1933		3.06	2.86	3.24	3.21	3.47	3.36	2.81	1.89	3.12
1934		3.75	4.73	3.95	4.06	3.98	4.65	4.64		4.26

[1] Where months are missing, average is for months shown.
[2] Includes an average in March 1932 of $2.73.
[3] Includes an average in January 1934 of $2.24.

Bureau of Agricultural Economics.

Compiled as follows: Chicago, October 1925–September 1927, from Bulletins 22 and 23, issued by Bureau of Railway Economics; October 1927–Oct. 12, 1929, average computed from unchecked records of Bureau of Railway Economics; beginning Oct. 14, 1929, from Chicago Fruit and Vegetable Reporter. New York, reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold. These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 202.—*Oranges, California, Navel: Weighted average auction price per box, Chicago and New York, by months, 1925–26 to 1934–35*

Market and season	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average for season [1]
Chicago:									
1925–26	-------	$4.45	$4.24	$4.76	$4.83	$5.34	-------	-------	$4.74
1926–27	-------	4.68	4.63	4.87	4.58	4.63	-------	-------	4.66
1927–28	-------	5.42	4.62	5.41	5.55	6.07	-------	-------	5.43
1928–29	$5.87	4.74	4.52	3.76	3.36	3.93	$3.51	-------	4.09
1929–30	6.29	5.75	5.08	5.19	6.25	6.31	6.82	-------	5.79
1930–31	5.33	3.49	3.45	3.20	3.48	3.31	4.14	-------	[2] 3.60
1931–32	3.63	3.09	2.71	3.39	3.00	3.09	3.37	-------	3.13
1932–33	3.14	2.78	2.84	2.66	2.55	2.43	2.87	$3.07	2.72
1933–34	2.80	3.22	2.97	2.77	2.82	2.81	3.41	3.22	2.98
1934–35	3.26	2.68	-------	-------	-------	-------	-------	-------	-------
New York:									
1925–26	8.00	4.56	4.24	4.55	4.70	5.50	4.73	5.56	4.80
1926–27	6.32	5.06	4.69	4.71	4.54	4.89	4.43	5.60	4.74
1927–28	6.28	5.55	4.56	5.18	5.52	5.98	7.39	-------	5.61
1928–29	5.72	4.46	4.84	3.89	3.52	4.06	3.56	3.56	4.10
1929–30	5.97	5.56	4.98	4.99	5.67	6.03	6.64	-------	5.64
1930–31	5.23	3.58	3.45	3.27	3.42	3.32	3.93	3.52	3.54
1931–32	3.87	3.30	2.71	3.35	3.06	3.08	3.38	-------	3.14
1932–33	3.05	2.78	2.84	2.73	2.55	2.47	2.83	3.02	2.73
1933–34	-------	3.09	2.82	2.79	2.72	2.65	3.23	-------	2.88
1934–35	3.25	2.66	-------	-------	-------	-------	-------	-------	-------

[1] Where months are missing, average is for months shown.
[2] Includes an average in October 1930 of $5.13.

Bureau of Agricultural Economics.

Compiled as follows: Chicago, December 1925-September 1927, from Bulletins 22 and 23, issued by Bureau of Railway Economics; October 1927–Oct. 12, 1929, average computed from unchecked records of Bureau of Railway Economics; beginning Oct. 14, 1929, from Chicago Fruit and Vegetable Reporter. New York, reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold. These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 203.—*Oranges, Florida: Weighted average auction price per box, Chicago and New York, by months, 1925–26 to 1934–35*

Market and season	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average for season [1] [2]
Chicago:											
1925–26	$7.35	$6.87	$3.30	$3.57	$4.34	$4.66	$5.40	$4.38	$6.41	-------	$4.64
1926–27	3.89	4.17	2.92	3.25	3.55	3.38	4.38	3.97	3.29	-------	3.55
1927–28	4.06	4.99	4.89	4.40	5.03	5.79	5.89	7.95	3.12	-------	5.08
1928–29	3.45	3.09	3.16	2.97	3.01	3.14	2.70	2.91	2.70	$2.34	2.96
1929–30	-------	4.15	4.18	4.03	4.41	5.15	6.76	5.71	-------	-------	4.72
1930–31	4.58	3.01	2.50	2.68	2.98	3.72	3.76	3.70	3.83	-------	3.33
1931–32	2.62	2.97	2.74	2.86	3.18	3.52	3.83	3.59	3.29	-------	3.24
1932–33	-------	3.03	2.76	2.67	2.44	2.43	2.36	2.29	2.55	2.76	2.52
1933–34	1.74	2.42	2.31	2.48	2.45	2.79	2.83	3.43	4.19	-------	2.68
1934–35	3.04	2.71	2.30	-------	-------	-------	-------	-------	-------	-------	-------
New York:											
1925–26	7.45	7.19	4.00	4.25	4.44	5.02	5.80	5.87	6.72	-------	5.10
1926–27	3.70	4.79	3.53	3.76	3.91	4.10	4.86	4.75	4.54	3.12	4.11
1927–28	3.67	6.31	5.59	5.23	5.97	6.29	6.84	8.58	9.11	-------	6.24
1928–29	5.08	3.71	3.55	3.45	3.30	3.30	3.55	3.33	2.99	2.92	3.40
1929–30	3.42	4.04	4.21	4.49	4.44	4.98	7.13	7.42	6.60	-------	4.94
1930–31	4.76	3.45	3.01	2.91	3.19	3.79	3.80	3.85	4.02	4.62	3.54
1931–32	2.64	3.20	3.11	3.10	3.38	3.55	3.75	3.63	3.59	4.38	3.43
1932–33	2.88	3.21	2.79	2.81	2.31	2.32	2.17	2.17	2.21	2.78	2.43
1933–34	2.47	2.49	2.36	2.44	2.43	2.84	2.75	3.55	4.66	3.26	2.78
1934–35	3.20	2.64	2.42	-------	-------	-------	-------	-------	-------	-------	-------

[1] Where months are missing, average is for months shown.
[2] Includes averages in other months as follows: New York, 1928–29, $2.29 in August 1929; 1930–31, $2.61 in September 1930; 1932–33, $3.69 in August 1933; 1933–34, $2.46 in September 1933.

Bureau of Agricultural Economics.

Compiled as follows: Chicago, October 1925-September 1927 from Bulletins 22 and 23, issued by Bureau of Railway Economics; October 1927–Oct. 12, 1929, average computed from unchecked records of Bureau of Railway Economics; beginning Oct. 14, 1929, from Chicago Fruit and Vegetable Reporter. New York, reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold. These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 204.—*Oranges: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
Spain	20,935	1	30,654	0	24,173	1	24,902	2	27,641	1
Italy	3,435	0	3,744	0	3,431	0	1,739	1	4,036	1
United States	3,285	14	2,236	0	4,849	0	3,129	0	3,399	0
Palestine	[2] 2,123	0	2,998	0	2,667	0	3,553	0	4,200	0
Union of South Africa	734	0	1,763	0	1,675	0	1,702	0	1,933	0
Brazil	571	0	812	0	2,054	0	1,930	0	2,554	0
Japan	449	0	378	0	263	0	412	0	652	0
Cuba	120	0	9	0	1	0	1	1	-------	-------
Total	31,652	15	42,594	0	39,113	1	37,368	4	44,415	2
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	11,307	0	13,774	0	14,310	0	12,939	0	16,097
Germany	([3])	6,259	([3])	9,946	([3])	7,851	([3])	6,705	([3])	7,633
France [4]	81	3,793	24	5,649	48	5,778	58	6,608	38	8,908
Canada	0	2,237	0	2,163	0	([5])	0	2,171	0	2,048
Netherlands	591	1,833	821	2,581	616	2,316	289	2,229	13	2,330
Belgium	([3])	[2] 875	([3])	1,913	([3])	1,893	([3])	[4] 2,018	([3])	[4] 2,312
China [6]	292	462	328	315	329	218	339	298	408	102
Switzerland	0	440	0	652	1	708	0	679	0	907
Czechoslovakia	0	416	0	791	0	788	0	567	0	845
Norway [4]	0	391	0	549	0	503	0	558	0	600
Sweden	0	357	1	747	1	797	4	751	2	947
Egypt [7]	4	345	5	382	5	112	10	70	23	73
Hungary	0	293	0	415	0	336	0	240	0	297
Poland	0	256	1	146	0	122	0	83	0	71
Irish Free State	0	255	0	325	0	332	0	336	0	492
Denmark	0	234	0	299	0	289	0	293	0	291
Yugoslavia	0	161	0	253	0	216	0	156	0	155
Total	968	29,914	1,180	40,900	1,000	36,569	700	36,701	484	44,108

[1] Preliminary.
[2] 4-year average.
[3] Included with lemons.
[4] Includes some lemons.
[5] Reported in value only.
[6] Does not include Manchuria after June 30, 1932.
[7] Beginning 1931, sweet lemons are included.

Bureau of Agricultural Economics; official sources. Converted to boxes of 78 pounds.

TABLE 205.—*Corn, canned: Pack [1] in the United States, 1922–34*

State	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Maine	1,066	923	1,294	1,693	1,347	806	966	1,521	1,930	1,245	1,071	1,055	1,547
New York	616	434	749	1,311	1,038	676	666	782	647	1,080	496	584	836
Ohio	1,073	1,390	787	2,375	1,735	846	1,138	1,551	750	1,871	405	505	1,021
Indiana	665	1,208	846	2,223	2,044	703	1,131	1,250	1,272	2,362	1,139	838	1,037
Illinois	1,939	2,833	2,310	4,030	3,053	1,961	3,017	3,153	3,261	3,788	2,024	1,812	1,548
Wisconsin	625	648	388	1,148	843	310	578	547	686	712	140	279	688
Minnesota	598	898	1,199	1,541	1,762	1,088	1,648	2,604	2,912	1,835	2,018	2,350	1,272
Iowa	1,959	2,382	1,764	4,105	3,361	1,377	2,541	2,908	2,552	3,227	444	1,132	1,266
Maryland	1,944	2,256	1,707	3,678	2,133	1,493	1,648	1,865	622	1,956	801	942	1,196
Other States	934	1,134	1,087	2,216	1,753	1,087	1,164	1,306	1,060	1,339	820	696	857
United States	11,419	14,106	12,131	24,320	19,069	10,347	14,497	17,487	15,692	19,415	9,358	10,193	11,268

[1] Stated in cases of 24 No. 2 cans.

Bureau of Agricultural Economics; compiled from National Canners' Association data, 1922–26 and 1934; Bureau of Census, 1927–29; Foodstuffs Division, Bureau of Foreign and Domestic Commerce 1930–33.

TABLE 206.—*Corn, sweet, commercial crop for manufacture: Acreage, production, and season average price per ton received by producers, by States; average 1928–32, annual 1933 and 1934*

State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*Short tons* [1]	*Short tons* [1]	*Short tons* [1]	*Dollars*	*Dollars*	*Dollars*
Maine	11,520	8,800	10,900	38,000	29,900	39,200	21.28	12.80	14.90
New Hampshire	1,000	570	700	2,600	1,500	2,200	20.16	13.90	14.50
Vermont	1,690	870	1,050	4,100	2,300	2,800	15.60	10.90	10.80
New York	20,580	12,700	14,600	33,400	20,300	33,600	14.28	10.90	11.00
Pennsylvania	6,600	3,200	5,400	8,400	5,100	9,200	13.24	9.60	10.00
Ohio	26,100	10,200	21,000	45,400	18,400	39,900	9.64	6.90	7.20
Indiana	34,680	26,600	38,500	57,600	34,600	50,000	11.48	7.80	8.30
Illinois	59,860	47,500	63,700	131,700	76,000	89,200	11.28	7.60	7.50
Michigan	6,630	2,900	5,000	7,800	2,300	4,500	11.42	10.00	9.70
Wisconsin	10,860	4,200	11,900	23,900	10,100	27,400	10.30	7.20	8.00
Minnesota	43,000	34,000	47,800	101,400	98,600	81,300	9.76	7.20	6.00
Iowa	41,090	18,700	27,000	95,100	41,100	51,300	8.90	5.60	6.20
Nebraska	5,750	3,900	1,000	9,800	7,000	1,200	8.78	7.40	6.00
Delaware	3,400	2,000	2,400	6,300	4,000	6,000	11.00	8.70	9.50
Maryland	34,760	19,600	29,100	48,200	35,300	43,600	12.40	8.50	10.00
Tennessee	2,980	730	2,130	6,400	2,300	5,300	13.70	7.60	8.70
Other States [2]	3,450	3,200	4,540	7,900	5,500	8,900	12.48	8.18	9.89
Total	313,950	199,670	286,720	628,000	394,300	495,600	11.50	8.01	8.44

[1] Tonnage in husk.
[2] Other States includes Colorado, Idaho, Kansas, Kentucky, Missouri, Montana, Oklahoma, Oregon, South Dakota, Virginia, Washington, and Wyoming.

Bureau of Agricultural Economics; estimates based on returns from canning establishments.

TABLE 207.—*Cranberries: Production and average price per barrel received by producers, by States, average 1927–31, and annual 1933 and 1934*

State	Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	Barrels	*Barrels*	*Barrels*	*Dollars*	*Dollars*
Massachusetts	386,800	506,000	290,000	5.50	10.00
New Jersey	117,800	142,000	70,000	5.50	11.00
Wisconsin	40,200	47,000	59,000	6.75	11.50
Washington	13,296	4,800	18,300	7.95	11.50
Oregon	5,160	3,900	6,000	7.95	11.50
United States	563,256	703,700	443,300	5.61	10.44

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 208.—*Cucumbers, commercial crop: Acreage, production, and season average price per bushel received by producers; average 1928–32, annual 1933 and 1934*

Utilization, marketing season, and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market:									
Fall	1,390	1,600	1,750	104	101	171	2.47	1.50	1.19
Early (sec. 1)	14,630	10,400	9,300	[2] 1,128	484	572	1.88	1.58	1.68
Early (sec. 2)	12,290	10,570	14,750	[2] 1,289	774	1,049	.74	.71	.71
Second early	7,780	5,150	5,200	[2] 783	300	385	.84	.53	.64
Intermediate	7,710	8,060	7,650	984	907	988	.85	.47	.59
Late (sec. 1)	1,890	2,690	2,300	220	207	242	.95	.59	.69
Late (sec. 2)	1,160	2,240	1,040	99	121	73	1.15	.85	1.18
Total	46,850	40,710	41,990	[2] 4,607	2,894	3,480	1.12	.79	.86
For pickles:									
Massachusetts	520	400	400	68	80	20	.62	.30	.30
New York	3,980	4,000	3,000	453	360	255	.80	.50	.60
Ohio	4,010	4,200	6,050	263	210	369	.93	.43	.45
Indiana	8,430	4,700	6,700	448	179	201	.73	.46	.46
Illinois	1,280	1,460	3,200	69	110	58	.85	.52	.70
Michigan	21,030	20,000	22,500	973	1,120	1,035	.75	.43	.48
Wisconsin	11,420	6,600	11,300	608	337	542	.86	.40	.43
Minnesota	2,980	1,220	2,350	123	39	68	.73	.34	.42
Iowa	2,490	1,860	1,200	111	97	26	.77	.35	.41
Missouri	1,830	640	630	57	10	4	.79	.30	.34
Maryland	1,620	1,500	1,600	125	154	197	.62	.40	.40
Virginia	1,740	3,000	3,000	144	258	162	.68	.55	.57
Mississippi	4,510	400	4,700	184	9	244	.61	.38	.36
Louisiana	930	400	1,000	41	24	40	.74	.38	.45
Texas	1,500	900	1,200	42	33	36	.65	.44	.42
Colorado	1,890	460	1,150	224	80	132	.51	.38	.48
Washington	490	200	240	66	28	36	.68	.55	.53
Oregon	1,080	930	750	134	110	105	.68	.50	.50
California	2,500	1,050	1,790	471	143	326	.55	.41	.41
Other States [3]	4,950	3,840	7,000	368	357	502	.69	.55	.54
Total	79,180	57,760	79,760	4,972	3,738	4,358	.73	.45	.47

[1] Bushels containing approximately 48 pounds.
[2] Includes some quantities not harvested on account of market conditions: 1,551,000 bushels in 1930; 234,000 in 1931, and 263,000 in 1932. Price refers to harvested portion of crop.
[3] Other States includes Alabama, Connecticut, Delaware, Florida, Kentucky, Maine, Nebraska, New Jersey, North Carolina, Oklahoma, Pennsylvania, South Dakota, Utah, and Wyoming.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 209.—*Cucumbers:* [1] *Car-lot shipments, by State of origin, 1923–34*

State	Calendar year											
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	383	694	686	456	607	1,001	529	907	714	574	699	421
New Jersey	258	276	481	261	368	370	161	117	149	57	32	57
Ohio [3]	68	111	91	187	203	191	119	131	208	104	74	21
Indiana [3]	6	16	57	104	135	147	126	63	35	21	11	15
Illinois [3]	15	77	245	150	101	148	118	254	151	94	65	53
Delaware	225	240	302	304	366	214	163	119	225	155	182	116
Maryland	446	311	598	479	692	563	469	527	680	280	483	283
Virginia	84	387	448	200	339	229	179	166	148	100	69	49
North Carolina	1,175	1,639	1,562	869	935	812	651	691	439	527	235	288
South Carolina	720	918	794	687	916	663	1,043	1,107	716	738	683	572
Georgia	45	154	72	62	72	76	135	162	82	159	216	302
Florida	1,647	1,381	1,963	2,048	2,300	1,572	2,271	1,137	1,463	699	679	737
Alabama	367	576	706	684	583	606	795	882	470	259	193	587
Arkansas	24	93	145	234	228	328	195	131	107	124	18	26
Louisiana	6	28	6	36	36	58	113	144	93	121	88	54
Texas	46	147	72	316	178	382	294	893	678	677	346	317
Other States	185	134	264	195	121	108	108	232	122	33	61	68
Total	5,700	7,182	8,492	7,272	8,180	7,468	7,469	7,663	6,480	4,722	4,134	3,966

[1] Cucumbers for pickling are not included.
[2] Preliminary.
[3] Principally hothouse stock.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 210.—*Dates: Production and average price per ton received by producers, California, 1925–34*

Item	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [1]
Production, short tons	340	522	710	817	865	1,560	1,200	2,150	2,200	2,610
Price, dollars	282	342	302	262	222	140	60	40	70	75
Farm value, basis average price, 1,000 dollars	96	179	214	214	192	218	72	86	154	196

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 211.—*Figs: Production, and average price per ton received by producers, California and Texas, 1924–34*

Year	Dried, California			Marketed fresh and canned, California			Preserving, Texas		
	Production	Price	Farm value, basis average price	Production	Price	Farm value, basis average price	Production	Price	Farm value, basis average price
	Short tons	*Dollars*	*1,000 dollars*	*Short tons*	*Dollars*	*1,000 dollars*	*Short tons*	*Dollars*	*1,000 dollars*
1924	8,500	100.00	850	2,135	104.00	222	1,180	102.00	120
1925	9,600	110.00	1,056	3,075	100.00	308	2,240	85.00	190
1926	11,350	95.00	1,078	5,100	112.00	571	4,978	68.00	339
1927	12,000	45.00	540	5,400	100.00	540	4,879	68.00	332
1928	11,500	45.00	518	6,130	87.00	533	6,513	65.50	427
1929	17,000	90.00	1,530	7,300	100.00	730	2,778	70.00	194
1930	21,000	48.00	1,008	7,700	90.00	693	2,961	70.00	207
1931	17,000	37.00	629	6,300	74.00	466	1,851	65.00	120
1932	17,000	25.47	433	6,500	36.50	237	504	50.00	25
1933	19,000	43.80	832	5,900	50.50	298	655	65.00	43
1934 [1]	19,500	43.15	841	9,000	51.85	467	966	62.20	60

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. Data for earlier years in 1928 Yearbook, table 165.

TABLE 212.—*Grapes: Production, average price per ton received by producers, and foreign trade, United States, 1919–34*

Year	Production			United States price	United States farm value, basis average price	Foreign trade, year beginning July [1]			
	Total, United States	California	Other States			Domestic exports	Imports	Net exports [2]	
								Total	Percentage of production
	Short tons	*Short tons*	*Short tons*	*Dollars*	*1,000 dollars*	*Short tons*	*Short tons*	*Short tons*	*Percent*
1919	1,575,587	1,345,000	230,587			0	6,404	[3] 6,290	
1920	1,520,570	1,273,000	247,570			0	12,018	[3] 11,925	
1921	1,219,546	1,100,000	119,546			[4] 86	9,397	[3] 9,220	
1922	[5] 2,085,315	[5] 1,806,000	279,315			7,011	16,324	[3] 9,139	
1923	2,252,206	2,030,000	222,206			10,128	10,015	198	[6]
1924	1,776,047	1,535,000	241,047	39.21	69,646	10,151	1,608	8,566	.5
1925	[5] 2,200,674	[5] 2,050,000	150,674	32.17	66,355	12,134	1,415	10,735	.5
1926	[5] 2,439,555	[5] 2,129,000	310,555	26.92	65,262	15,396	1,011	14,414	.6
1927	[5] 2,589,652	[5] 2,406,000	183,652	26.86	65,736	19,410	1,735	17,747	.7
1928	[5] 2,649,739	[5] 2,366,000	283,739	20.06	50,080	27,819	1,703	26,155	1.0
1929	2,080,547	1,827,000	253,547	27.28	56,749	23,079	2,687	20,448	1.0
1930	[5] 2,443,042	[5] 2,181,000	262,042	19.33	44,969	24,900	2,856	22,107	.9
1931	[5] 1,621,315	[5] 1,320,000	301,315	22.39	36,085	13,806	3,013	10,902	.7
1932	[5] 2,203,752	[5] 1,926,000	277,752	13.16	26,982	14,676	3,157	11,616	.5
1933	[5] 1,909,581	[5] 1,660,000	249,581	17.75	33,841	13,344	3,928	9,416	.5
1934 [7]	1,775,168	1,544,000	231,168	20.01	35,519				

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1920–26; January and June issues, 1927–34.

[2] Total exports (domestic plus foreign) minus total imports. Beginning 1933–34 domestic exports minus imports for consumption. (See introductory text.)

[3] Net import equals total imports minus total exports (domestic plus foreign).

[4] January–June 1922; reported in value only prior this date.

[5] Includes some quantities not harvested on account of market conditions as follows: 100,000 tons in 1922; 138,000 in 1925; 15,000 in 1926; 142,000 in 1927; 153,000 in 1928; 433,000 in 1930, including 316,000 tons sold but left on the vines; 10,000 in 1931; 154,000 in 1932; and 3,000 in 1933. Price and value are based on the quantities actually harvested, plus a quantity of fruit that was sold but left on the vines in 1930.

[6] Less than 0.05 percent.

[7] Preliminary.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board, revised. Prices are based upon returns from crop reporters.

TABLE 213.—*Grapes: Production and average price per ton received by producers, by States, average 1927–31, and annual 1933 and 1934*

State and division	Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	Short tons	*Short tons*	*Short tons*	*Dollars*	*Dollars*
Maine	29	24	7	80.00	95.00
New Hampshire	48	43	29	80.00	95.00
Vermont	36	31	11	80.00	85.00
Massachusetts	360	353	307	60.00	80.00
Rhode Island	239	207	171	70.00	80.00
Connecticut	1,207	1,240	1,023	55.00	80.00
New York	76,540	64,800	49,400	24.00	30.00
New Jersey	2,835	2,535	2,464	38.00	40.00
Pennsylvania	22,798	17,808	18,981	25.00	27.00
North Atlantic	104,091	87,041	72,393	25.34	30.65
Ohio	23,724	27,412	22,720	29.00	35.00
Indiana	2,608	2,590	2,812	26.00	30.00
Illinois	5,223	5,986	5,658	26.00	30.00
Michigan	57,150	58,562	61,145	20.00	25.00
Wisconsin	320	357	274	70.00	75.00
Minnesota	233	307	194	70.00	75.00
Iowa	6,430	6,624	5,060	35.00	40.00
Missouri	8,474	9,880	7,540	35.00	40.00
Nebraska	2,398	1,824	1,216	60.00	65.00
Kansas	4,066	4,158	2,574	45.00	50.00
North Central	110,626	117,700	109,193	26.41	30.46
Delaware	2,015	2,448	2,430	45.00	50.00
Maryland	714	596	614	55.00	50.00
Virginia	1,897	1,666	1,692	75.00	70.00
West Virginia	994	990	944	80.00	85.00
North Carolina	4,461	4,661	4,640	45.00	65.00
South Carolina	966	958	829	65.00	70.00
Georgia	860	759	738	90.00	95.00
Florida	861	767	1,026	80.00	75.00
South Atlantic	12,768	12,845	12,913	58.23	66.44
Kentucky	898	1,174	1,113	45.00	50.00
Tennessee	1,014	1,155	1,110	55.00	60.00
Alabama	619	625	641	65.00	60.00
Mississippi	232	231	228	75.00	80.00
Arkansas	10,193	12,120	16,640	26.00	25.00
Louisiana	46	41	44	75.00	70.00
Oklahoma	2,341	2,610	2,112	40.00	45.00
Texas	1,626	1,820	1,595	55.00	60.00
South Central	16,969	19,776	23,483	35.24	33.60
Idaho	541	488	574	55.00	47.00
Colorado	385	400	459	55.00	44.00
New Mexico	832	768	1,336	60.00	44.00
Arizona	1,671	2,016	1,732	35.00	40.00
Utah	1,068	930	1,200	50.00	48.00
Nevada	150	92	107	85.00	80.00
Washington	5,325	5,320	5,538	17.00	21.00
Oregon	2,434	2,205	2,240	20.00	26.00
California	[2] 2,020,000	[2] 1,660,000	1,544,000	16.13	18.08
Wine varieties	[2] 434,800	[2] 420,000	446,000	19.75	14.80
Raisin varieties	[2] 1,205,800	[2] 970,000	799,000	14.93	17.76
Dry [3]	224,400	195,000	154,000	57.40	68.40
Not dried	[2] 308,200	190,000	183,000	17.30	20.00
Table varieties	[2] 379,400	[2] 270,000	299,000	14.80	23.80
Western	[2] 2,032,405	[2] 1,672,219	1,557,186	16.22	18.19
United States	[2] 2,276,859	[2] 1,909,581	1,775,168	17.75	20.01

[1] Preliminary.

[2] Includes some quantities not harvested on account of market conditions as follows: Wine varieties, 1928, 18,000 tons; 1930, 40,000; 1931, 10,000; raisin varieties (not dried), 1928, 60,000 tons; 1930, 319,000 including 316,000 sold but left on the vines; table varieties, 1927, 142,000 tons; 1928, 75,000; 1930, 74,000; 1933, 3,000. Prices and value are computed on the harvested crop, plus a quantity of fruit that was sold but left on the vines in 1930.

[3] Dried basis: 1 ton of dried raisins equivalent to 4 tons of fresh grapes.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 214.—*Grapes: Car-lot shipments, by State of origin, 1923–34*

State	Crop-movement season [1]											
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	4,312	5,641	3,763	7,242	3,050	3,750	2,541	2,049	4,240	1,670	1,129	412
Pennsylvania	847	1,166	589	1,350	689	1,076	879	809	1,290	613	421	355
Michigan	4,202	4,680	398	3,081	2,023	1,571	1,746	1,620	528	892	592	538
Iowa	217	79	50	176	196	234	369	226	185	203	118	113
Missouri	58	101	166	686	108	415	225	316	329	170	111	91
Arkansas	33	243	394	1,170	108	998	510	322	313	233	190	77
Washington	62	83	191	125	167	235	232	117	94	73	38	56
California	55,348	57,695	76,066	64,327	75,925	73,157	59,205	65,185	39,777	42,239	29,282	30,379
Other States	257	245	261	433	411	332	395	271	190	178	144	91
Total	65,336	69,933	81,878	78,590	82,677	81,768	66,102	70,915	46,946	46,271	32,025	32,112

[1] Crop-movement season extends from June 1 through December of a given year. Figures for California include shipments in January, February, and March following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 215.—*Grapes: Number of packages of California varieties sold, and weighted season average price,[1] auction sales in 11 markets,[2] 1929–34*

Variety or type	Number of packages (crates or lugs) [3]						Average price per package					
	1929	1930	1931	1932	1933	1934	1929	1930	1931	1932	1933	1934
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
Flame Tokay	1,867	2,485	1,591	1,480	1,469	1,332	1.42	1.15	1.59	1.10	1.18	1.34
Emperor	56	41	991	703	649	788	1.62	1.06	1.61	1.11	1.34	1.67
Red Malaga	113	119	157	274	195	275	2.20	1.79	1.93	1.17	1.65	1.79
Ribier	89	152	184	251	224	346	1.86	1.67	1.71	1.43	1.51	1.74
Sultanina (Thompson Seedless)	2,737	2,377	1,555	2,237	1,779	2,329	1.48	1.28	1.53	1.27	1.43	1.52
Malaga	2,045	2,096	2,976	1,351	1,162	1,558	1.37	1.08	1.22	.90	1.11	1.15
Muscat	2,754	2,455	931	2,770	1,467	807	1.06	1.08	1.18	.76	.99	1.11
Alicante Bouschet	4,759	5,123	3,480	3,845	1,957	2,339	1.29	1.11	1.16	.91	1.07	1.08
Carignane	1,541	1,973	1,654	1,476	737	858	1.14	.97	1.11	.73	.98	1.02
Cornichon	314	268	264	132	147	163	1.26	.98	1.26	.94	1.10	1.29
Mataro	199	176	172	204	40	31	1.14	1.13	.99	.85	1.01	.97
Mission	297	283	308	179	127	50	1.23	.91	1.15	.68	.92	1.10
Petit Syrah	276	235	113	152	16	26	1.15	1.11	.92	.88	1.22	1.02
Zinfandel	1,425	1,112	624	1,309	627	598	1.14	1.06	1.05	.95	1.13	1.16
Total or average	18,472	18,895	15,000	16,363	10,596	11,500	1.29	1.11	1.29	.96	1.17	1.29

[1] Season beings about Aug. 1 and ends in November.
[2] Baltimore, Boston, Chicago, Cincinnati, Cleveland, Detroit, Minneapolis, New York, Philadelphia, Pittsburgh, and St. Louis.
[3] Packages containing about 26–28 pounds.

Bureau of Agricultural Economics; compiled from daily reports of the fruit and vegetable market news service. Only principal varieties shown.

TABLE 216.—*Grapes, Concord: Average l. c. l. price per 12-quart basket to jobbers, specified markets, by State of origin, October 1925–34*

Season	Price of New York Concords at—				Price of Michigan Concords at—		
	Boston	New York	Philadelphia	Pittsburgh	Chicago	Minneapolis	St. Louis
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	102	114	104	109	109	118	----
1926	61	62	56	60	43	67	56
1927	56	61	64	64	55	76	65
1928	60	54	49	51	44	59	53
1929	50	54	51	48	41	56	49
1930	57	51	54	48	41	53	56
1931	----	36	34	29	32	44	42
1932	32	31	31	24	18	26	23
1933	38	35	36	29	26	----	31
1934	43	41	43	36	31	36	35

Bureau of Agricultural Economics; compiled from daily market reports from Bureau representatives in the various markets.

TABLE 217.—*Lettuce: Car-lot shipments, by State of origin, 1923–34*

State	Crop-movement season [1]											
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	3,817	3,698	3,821	3,019	3,496	3,140	3,704	3,219	3,291	2,500	1,266	898
New Jersey	456	416	463	303	308	144	169	27	18	10	1	----
North Carolina	718	714	537	540	447	477	363	364	498	110	195	44
South Carolina	576	424	736	372	369	241	310	169	278	46	115	84
Florida	2,926	2,490	2,190	707	950	880	1,117	560	940	440	465	420
Idaho	1,241	533	500	398	196	72	76	154	180	237	387	482
Colorado	1,436	1,036	3,096	2,795	2,848	2,368	2,109	1,610	1,004	598	664	460
Arizona	834	1,776	2,689	4,572	7,679	9,325	9,285	8,431	7,850	7,021	7,216	6,472
Washington	1,082	673	820	904	1,151	1,240	1,747	2,230	1,778	1,595	1,466	1,427
California	13,916	17,040	20,999	25,126	28,502	32,122	33,854	38,736	35,211	34,869	30,978	33,124
Other States	791	661	658	541	400	319	286	218	151	161	187	281
Total	27,793	29,461	36,509	39,277	46,346	50,328	53,020	55,718	51,199	47,587	42,940	43,692

[1] Crop-movement season covers 15 months, from October of the previous year through December of the given year, i. e., 1923 season begins in October 1922 and extends through December 1923.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 218.—*Lettuce, commercial crop: Acreage, production, and season average price per crate received by producers, by States; average 1928–32, annual 1933 and 1934*

Group and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 crates* [1]	*1,000 crates* [1]	*1,000 crates* [1]	*Dollars*	*Dollars*	*Dollars*
Early: [2]									
Arizona	14,860	12,400	11,000	1,374	1,178	825	1.55	1.10	1.60
California, Imperial	32,370	30,000	31,500	3,870	3,090	[3] 3,087	1.71	1.35	1.30
Florida	1,910	1,650	1,800	531	574	594	1.35	.84	.94
Lettuce	1,340	950	1,100	314	280	260	1.45	.96	1.12
Escarole	570	700	700	217	294	334	1.20	.72	.80
Texas	600	100	-------	46	6	-------	1.00	.50	-------
Total	49,740	44,150	44,300	5,821	4,848	[3] 4,506	1.62	1.23	1.31
Second early:									
Arizona	15,580	13,000	14,000	1,523	1,339	1,470	1.71	1.60	1.35
California, other	29,190	27,250	27,550	3,119	3,134	3,719	1.64	1.15	2.03
North Carolina	1,350	1,350	700	136	101	42	1.32	1.00	2.80
South Carolina	520	400	250	77	46	38	1.62	1.00	1.40
Total	46,640	42,000	42,500	4,855	4,620	5,269	1.65	1.28	1.84
Intermediate:									
Idaho	70	80	250	10	12	50	1.53	.75	1.25
New Jersey	1,040	1,000	900	219	250	194	1.53	1.10	1.10
Oregon	90	180	200	8	15	15	1.03	.60	.70
Virginia	230	200	160	43	35	24	1.58	1.50	1.60
Washington	2,800	4,100	4,500	[3] 571	[3] 779	855	.89	.60	.55
Total	4,230	5,560	6,010	[3] 851	[3] 1,091	1,138	1.10	.76	.70
Late (sec. 1):									
California	11,400	9,250	16,100	1,400	1,304	1,980	1.96	1.88	1.50
Colorado	7,860	5,630	5,480	[3] 800	563	493	.99	1.00	.80
New Mexico	220	200	480	18	19	43	1.15	1.20	1.70
New York	5,480	5,400	5,000	1,368	837	1,000	1.31	.75	.40
Pennsylvania	250	250	250	39	45	40	1.44	.90	.85
Total	25,210	20,730	27,310	[3] 3,625	2,768	3,556	1.50	1.34	1.09
Late (sec. 2):									
California, other	27,620	26,600	31,000	3,684	3,644	3,999	1.76	1.46	1.25
Idaho	350	700	900	55	126	180	1.04	.90	.65
New Jersey	940	750	700	173	169	105	1.60	.88	1.20
Oregon	120	120	1,000	[3] 16	18	170	.96	.85	.35
Washington	420	500	600	[3] 83	90	132	1.10	.95	.45
Total	29,450	28,670	34,200	[3] 4,011	4,047	4,586	1.73	1.40	1.17
Grand total	155,270	141,110	154,320	[3] 19,163	[3] 17,374	[3] 19,055	1.59	1.27	1.35

[1] Western crates containing approximately 75 pounds (mostly packed 4 to 6 dozen heads per crate).
[2] Season begins in fall of the previous year.
[3] Includes some quantities not harvested on account of market conditions: California, Imperial, 300,000 crates in 1934; Colorado, 389,000 crates in 1932; Oregon, late crop, 10,000 crates in 1932; Washington, intermediate crop, 96,000 crates in 1932 and 95,000 in 1933, and late crop, 15,000 in 1932. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 219.—*Olives: Production and average price per ton received by producers, California, 1925–34*

Item	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [1]
Production—short tons	14,000	12,000	21,500	23,900	21,000	20,000	16,000	22,000	14,000	16,000
Price—dollars	60.00	80.00	80.00	80.00	75.00	70.00	46.00	29.00	58.00	68.00
Farm value, basis average price—1,000 dollars	840	960	1,720	1,912	1,575	1,400	736	638	812	1,088

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. Data for earlier years in 1928 Yearbook, table 165.

TABLE 220.—*Olive oil (including inedible): International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Spain	164, 975	2	235, 678	0	206, 921	0	138, 805	0	95, 136	0
Italy	66, 494	1, 769	159, 698	132, 561	129, 470	180, 581	99, 761	83, 518	76, 934	81, 888
Tunis	53, 947	1, 458	109, 301	151	28, 910	713	52, 792	814	136, 821	36
Greece	28, 599	[2] 123	18, 514	[3] 7	21, 604	[3] 5	68, 113	0	62, 060	------
Algeria	28, 466	115	54, 152	79	18, 309	49	40, 282	87	18, 399	1, 662
Turkey	18, 185	[4] 198	10, 452	[3] 4	40, 254	[3] 35	[3] 5, 459	0	------	------
Syria and Lebanon [3]	4, 283	339	6, 397	413	7, 199	351	[3] 7, 258	[3] 256	------	------
Morocco	4, 206	282	3	1, 361	0	2, 762	0	1, 729	2	7, 177
Yugoslavia	1, 077	861	322	542	182	402	136	184	234	108
Total	370, 232	5, 147	594, 517	135, 118	452, 849	184, 898	412, 606	86, 588	389, 586	90, 871
PRINCIPAL IMPORTING COUNTRIES										
United States	0	135, 847	0	162, 860	0	119, 363	0	131, 942	0	125, 337
Argentina	0	95, 334	0	130, 715	0	91, 782	0	79, 956	0	83, 183
France	13, 958	40, 146	25, 446	72, 390	22, 389	46, 792	20, 238	55, 635	23, 184	61, 095
United Kingdom	324	19, 100	269	21, 179	208	19, 604	390	24, 344	0	26, 871
Cuba	0	16, 654	0	20, 983	0	14, 490	0	17, 643	------	------
Chile	0	14, 103	0	6, 741	21	5, 288	4	1, 758	------	804
Uruguay	0	13, 410	0	18, 753	0	[3] 15, 115	0	[3] 10, 632	0	------
Brazil	0	12, 808	0	18, 399	0	5, 848	0	11, 595	0	10, 695
Norway	0	7, 098	0	5, 882	0	2, 960	0	8, 500	0	7, 100
Macao (Portuguese China) [3]	[4] 2, 331	[4] 6, 813	998	5, 151	796	4, 642	------	------	------	------
Portugal	5, 722	6, 659	8, 020	26, 510	3, 979	7, 005	8, 671	3, 271	------	------
Palestine	710	5, 726	1, 147	2, 148	1, 762	94	1, 576	1, 062	------	------
Canada	0	4, 044	0	6, 487	0	5, 590	0	5, 153	0	4, 092
Switzerland	2	3, 443	0	4, 847	9	4, 096	9	4, 651	7	5, 379
Egypt	32	2, 666	24	3, 907	9	2, 394	6	2, 875	------	2, 798
Germany	53	2, 631	50	3, 393	145	2, 955	41	3, 023	36	3, 065
Mexico	0	2, 230	0	3, 827	0	2, 136	0	[3] 2, 853	0	------
Rumania	1	1, 871	0	1, 549	0	1, 171	0	1, 264	0	------
Australia [3]	1	1, 545	2	2, 530	1	1, 484	0	2, 295	------	------
Belgium	33	1, 319	22	1, 671	13	1, 209	11	1, 344	8	1, 263
Peru	0	1, 272	0	1, 188	15	836	3	854	0	------
Bulgaria	0	1, 227	0	507	0	496	0	434	0	195
Czechoslovakia	24	958	2	1, 208	0	1, 187	0	1, 279	0	1, 109
Sweden [5]	4	454	3	840	29	656	3	748	41	778
Philippine Islands	0	312	0	292	0	346	0	339	------	------
Netherlands	7	181	16	280	18	278	29	424	6	323
New Zealand	0	173	0	312	0	189	0	291	0	302
Denmark	6	154	5	341	3	264	2	198	4	203
Total	23, 208	398, 178	36, 004	524, 890	29, 397	358, 269	30, 983	374, 363	23, 286	334, 592

[1] Preliminary.
[2] 2-year average.
[3] International Yearbook of Agricultural Statistics.
[4] 4-year average.
[5] Beginning 1931, includes sesame oil.

Bureau of Agricultural Economics; official sources except where otherwise noted
Conversions made on the basis of 7.5 pounds to the gallon.

TABLE 221.—*Onions, commercial crop: Acreage, production, and season average price per bushel received by producers, by States; average 1928–32, annual 1933 and 1934*

Group and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
Early (Bermuda):	*Acres*	*Acres*	*Acres*	*1,000 sacks* [1]	*1,000 sacks* [1]	*1,000 sacks* [1]	*Dollars*	*Dollars*	*Dollars*
Louisiana [2]	1,610	500	550	86	18	16	2.03	1.75	1.00
Texas	18,540	18,000	21,700	[3] 1,847	1,170	[3] 1,562	1.83	1.05	1.10
California	2,630	1,150	1,850	[3] 337	167	204	1.84	1.85	1.65
Total	22,780	19,650	24,100	[3] 2,270	1,355	[3] 1,782	1.84	1.16	1.17
Intermediate (domestic):									
New Jersey	2,460	3,600	3,500	338	540	560	1.65	1.35	1.70
Virginia	570	550	650	45	38	58	1.39	2.20	1.35
Kentucky	540	340	350	69	36	30	.96	1.50	1.35
Texas, north	1,820	1,800	2,600	244	225	390	1.71	1.80	1.80
Iowa, Scott County district	1,030	1,000	950	156	130	43	1.45	1.30	1.40
Washington, Walla Walla district	780	660	900	195	152	266	.84	.70	.80
California	1,130	1,150	2,140	[3] 290	345	439	.88	1.35	1.10
Total	8,330	9,100	11,090	[3] 1,337	1,466	1,786	1.29	1.37	1.42
Late (domestic): [4]									
Eastern:									
Massachusetts	2,900	3,300	2,900	606	693	783	1.32	1.25	1.15
New York	7,740	8,600	9,000	1,663	2,021	2,475	1.27	1.25	1.10
Pennsylvania	350	290	330	51	38	53	1.43	1.25	1.15
Total	10,990	12,190	12,230	2,320	2,752	3,311	1.27	1.25	1.11
Central:									
Ohio	5,800	4,610	4,200	710	567	504	1.22	1.05	1.20
Indiana	8,470	7,000	5,100	1,410	756	484	1.20	.95	1.25
Illinois	750	750	400	101	64	32	1.39	1.50	1.25
Michigan	6,590	7,600	8,720	1,124	1,520	1,918	1.19	1.05	1.20
Wisconsin	1,030	1,150	1,000	173	167	205	1.21	1.05	1.05
Minnesota	2,170	2,250	1,200	387	484	126	1.15	.90	1.40
Iowa, other	1,710	1,120	700	[3] 293	134	63	1.17	.95	1.55
Total	26,520	24,480	21,320	[3] 4,198	3,692	3,332	1.19	1.01	1.21
Western:									
Idaho	1,360	1,550	2,350	[3] 381	395	811	1.09	.75	.75
Colorado	5,220	4,150	4,440	[3] 924	652	533	1.11	.80	.88
Utah	1,020	900	750	253	194	221	1.02	1.15	.95
Nevada	[5] 160	170	150	[5] 28	15	14	[5] .91	1.00	.80
Washington, other	880	1,000	1,200	230	260	306	1.04	.53	.80
Oregon	1,130	1,650	1,800	275	462	432	1.23	.85	.90
California	5,790	4,530	3,260	[3] 999	824	561	1.34	.90	1.05
Total	15,530	13,950	13,950	[3] 3,084	2,802	2,878	1.18	.83	.88
Total, late	53,040	50,620	47,500	[3] 9,602	9,246	9,521	1.21	1.03	1.08
Grand total	84,150	79,370	82,690 [3]	13,209	12,067 [3]	13,089	1.31	1.09	1.14

[1] Sacks containing 100 pounds.
[2] Includes a small acreage of Creole onions.
[3] Includes some quantities not harvested on account of market conditions: Early California, 88,000 sacks in 1928 and 25,000 in 1932; Texas, 363,000 sacks in 1931 and 186,000 in 1934; intermediate-California, 116,000 sacks in 1932; late-California, 43,000 sacks in 1930 and 259,000 in 1932; Colorado, 83,000 sacks in 1929 and 99,000 in 1932; Idaho, 97,000 sacks in 1932; Iowa, 6,000 sacks in 1932.
[4] Average price for late States is computed only to Dec. 1.
[5] Short-time average.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 222.—*Onions: Car-lot shipments, by State of origin, 1923–24 to 1933–34*

State	Crop-movement season [1]									
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Massachusetts	2,454	2,481	2,856	3,586	2,495	1,416	1,854	1,474	1,360	597	599
New York	5,505	5,335	5,109	3,720	4,102	1,807	3,985	4,226	3,272	2,570	2,931
New Jersey	335	403	235	253	295	333	239	193	219	105	150
Ohio	2,714	4,492	1,856	2,287	4,070	1,774	2,988	2,293	1,341	1,397	956
Indiana	4,610	3,735	4,158	4,493	5,000	3,939	5,195	6,879	2,750	4,878	1,827
Illinois	378	241	291	158	142	180	142	193	69	155	40
Michigan	1,222	1,623	1,402	2,171	2,653	2,664	2,964	5,499	2,800	4,776	4,913
Wisconsin	273	212	361	270	279	294	241	219	199	236	175
Minnesota	189	487	674	684	1,289	1,077	1,448	1,141	740	1,527	1,710
Iowa	882	1,176	1,365	1,434	1,333	1,430	1,492	1,762	789	1,031	708
Virginia	274	345	138	178	131	178	234	109	147	61	38
Kentucky	263	266	152	134	145	69	59	12	38	13	43
Texas	3,027	3,918	3,941	5,316	4,028	7,081	7,232	6,312	5,718	8,341	4,924
Idaho	256	322	876	531	891	1,152	731	677	1,315	299	1,088
Colorado	928	1,064	1,809	1,758	1,460	2,244	4,042	2,124	1,482	1,593	1,723
Utah	177	216	599	662	654	1,029	950	551	495	472	472
Washington	1,126	1,016	1,000	1,200	1,302	1,153	1,417	1,464	1,299	645	986
Oregon	392	558	681	678	671	663	660	730	1,062	[3] 519	1,365
California	4,145	2,671	3,603	3,013	3,753	4,492	4,144	4,062	3,384	1,964	3,044
Other States	330	235	540	536	499	351	264	147	328	182	150
Total	29,480	30,796	31,646	33,062	35,192	33,326	40,281	40,067	28,807	31,361	27,842

[1] Crop-movement season covers 16 months, from March of one year through June of the following year.
[2] Preliminary. [3] Includes 1 car in July 1933.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 223.—*Onions: Average l. c. l. price per 100 pounds to jobbers, New York and Chicago, 1925–26 to 1934–35*

Market and season	Bermuda varieties						Various common varieties								
	April		May		June										
	Yellow	Crystal White Wax	Yellow	Crystal White Wax	Yellow	Crystal White Wax	July	August	September	October	November	December	January	February	March
New York:	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	4.19	5.04	6.16	5.01	7.18	-----	5.27	2.94	2.36	2.86	2.80	3.26	2.95	2.69	2.81
1926–27	-----	-----	4.37	-----	3.27	-----	2.58	2.26	1.59	1.82	1.92	2.74	3.08	2.76	3.46
1927–28	5.36	-----	5.64	-----	6.64	-----	2.90	2.17	1.72	1.60	1.72	2.18	2.60	2.89	4.25
1928–29	5.38	6.17	3.14	3.33	2.37	2.00	2.15	2.62	3.53	3.62	4.14	4.42	4.88	5.42	4.67
1929–30	4.47	-----	3.10	-----	3.50	-----	3.03	2.31	2.02	1.91	1.86	2.28	2.23	2.37	2.11
1930–31	3.40	4.05	2.60	-----	2.96	-----	2.25	1.88	1.70	1.53	1.63	1.55	1.28	1.32	1.47
1931–32	-----	-----	-----	-----	3.20	-----	1.73	2.14	2.55	2.73	2.97	3.85	4.58	4.58	6.38
1932–33	[1] 6.52	-----	[2] 2.78	[2] 2.71	[1] 1.69	-----	1.49	1.17	1.27	1.41	1.29	1.26	1.37	1.41	1.45
1933–34	[1] 2.27	-----	2.42	-----	3.38	-----	2.22	2.30	2.08	2.16	2.20	2.77	2.94	3.12	2.71
1934–35	[1] 2.99	[1] 3.11	[1] 1.87	[1] 1.97	3.18	3.20	2.71	2.83	2.42	2.25	2.54	2.52	-----	-----	-----
Chicago:															
1925–26	4.15	5.46	6.33	6.75	7.94	8.39	4.94	3.41	2.90	3.11	3.35	3.46	3.20	2.81	3.18
1926–27	5.60	5.92	3.97	4.71	3.21	3.61	2.34	2.25	2.07	1.92	1.69	2.46	3.31	3.42	3.92
1927–28	5.27	5.96	5.66	6.15	5.57	6.07	3.31	2.57	1.74	1.68	1.65	2.02	2.77	2.78	4.04
1928–29	4.57	5.23	3.04	3.17	2.31	2.64	2.25	2.72	3.35	3.66	4.22	4.59	5.27	5.39	5.26
1929–30	4.07	5.22	3.06	3.33	3.45	4.42	3.60	3.08	2.44	2.12	2.20	2.29	2.39	2.18	1.73
1930–31	3.87	4.55	2.78	3.15	3.02	3.48	2.98	[2] 2.12	[2] 1.80	[2] 1.14	[3] .89	1.47	1.51	1.27	1.60
1931–32	-----	-----	3.26	3.71	2.93	3.14	2.24	2.43	2.74	2.94	2.76	3.57	4.65	5.14	6.86
1932–33	[1] 6.66	[1] 7.16	2.42	2.60	1.68	1.84	-----	1.23	1.29	1.09	1.00	1.06	1.06	1.04	1.16
1933–34	[1] 2.49	[1] 2.51	2.38	2.57	2.88	2.92	2.72	2.50	2.14	1.72	1.80	2.08	3.11	3.12	2.46
1934–35	[1] 2.59	[1] 3.02	2.04	2.11	2.76	2.84	2.75	2.61	1.90	1.82	2.22	2.05	-----	-----	-----

[1] No quotations for U. S. No. 1 grade; prices shown are for U. S. Commercial grade which is not comparable with U. S. No. 1. [2] Car-lot sales

Bureau of Agricultural Economics; compiled from daily market reports from Bureau representatives in the markets.

Average prices as shown are based on stock of U. S. No. 1 grade, except as otherwise stated; they are simple averages of daily range of selling prices. In some cases conversions have been made from larger to smaller units or vice versa in order to obtain comparability.

TABLE 224.—*Peaches: Total production, average price per bushel received by producers, and exports of the United States, 1919–34* [1]

Year	Production	Price [2]	Farm value, basis average price	Domestic exports, year beginning July [3]				
				Fresh	Dried	Canned [4]	Total in terms of fresh	Percentage of production
	1,000 bushels	*Dollars*	*1,000 dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 bushels*	*Percent*
1919	*50,686*							
1919	51,756	1.89	98,061		12,756		1,399	2.7
1920	44,541	2.04	90,734		3,573		392	.9
1921	32,813	1.48	48,539	[5] 611	6,260		699	2.1
1922	57,476	1.33	76,425	13,170	5,586	54,624	3,163	5.5
1923	44,781	1.37	61,187	15,065	12,975	50,374	3,835	8.6
1924	*47,755*							
1924	51,146	1.24	63,365	16,172	4,668	57,390	3,240	6.3
1925	44,335	1.36	60,536	15,749	3,351	83,160	4,161	9.4
1926	[6] 64,799	.99	62,869	14,453	6,968	81,896	4,477	6.9
1927	[6] 41,601	1.16	45,259	17,969	6,542	86,634	4,701	11.3
1928	[6] 64,501	.97	58,578	22,067	12,436	101,438	6,050	9.4
1929	*42,827*							
1929	44,434	1.37	60,855	19,973	3,847	74,470	3,941	8.9
1930	[6] 54,186	.88	43,895	12,859	8,482	75,763	4,355	8.0
1931	[6] 76,689	.56	40,984	10,731	8,490	66,300	3,917	5.1
1932	[6] 42,443	.53	18,838	3,298	7,649	74,999	4,032	9.5
1933	[6] 44,692	.76	32,340	3,371	7,569	81,464	4,224	9.5
1934 [7]	[6] 45,404	.80	34,770					

[1] Dried peaches converted to terms of fresh on the basis that dried peaches equal 19 percent of fresh. Canned peaches converted to terms of fresh on the basis that 24 pounds of fresh equal 1 dozen cans of 1 pound each; 48 pounds of fresh equals 1 bushel. In practice, 1 bushel of fresh fruit is figured as the equivalent of 2 dozen cans of 1 pound each. No reexports reported.

[2] From 1919 to 1922, Sept. 15 price; 1923–25, Sept. 15 price in North, Aug. 15 price in South; 1926–34, average price for the crop-marketing season.

[3] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26, January and June issues, 1927–34.

[4] Canned peaches were reported in value only, prior to July 1, 1922.

[5] No exports reported prior to Jan. 1, 1922; figures for 1921 represent exports Jan. 1, 1922, to June 30, 1922.

[6] Includes some quantities not harvested on account of market conditions as follows: 1,297,000 bushels in 1926; 2,709,000 in 1927; 3,842,000 in 1928; 10,639,000 in 1930, including 6,180,000 sold but left on the trees; 8,063,000 in 1931, including 3,938,000 sold but left on the trees; 6,710,000 in 1932; 3,647,000 in 1933, including 1,480,000 sold but left on the trees, and 2,208,000 in 1934. Values are based on the quantity actually harvested plus a quantity of fruit that was sold but left on the trees in 1930, 1931, and 1933.

[7] Preliminary.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board, revised. Italic figures are census returns. Prices based upon returns from crop reporters.

TABLE 225.—*Peaches: Production and average price per bushel received by producers, by States, average 1927–31, and annual 1933 and 1934*

State and division	Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	1933	1934
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*Dol.*	*Dol.*
N. H.	19	18	-------	1.50	------
Mass.	141	134	2	1.40	1.75
R. I.	30	26	2	1.45	1.75
Conn.	195	172	2	1.30	2.00
N. Y.	1,472	1,092	41	1.10	2.15
N. J.	1,727	987	22	1.10	2.35
Pa.	1,568	1,144	442	1.20	1.85
N. Atlantic	5,151	3,573	511	1.16	1.90
Ohio	1,142	456	228	1.45	1.80
Ind.	700	221	192	1.35	1.45
Ill.	1,893	1,522	528	1.20	1.40
Mich.	1,175	215	423	1.75	1.75
Iowa	64	7	53	1.55	1.10
Mo.	621	204	468	1.15	1.00
Nebr.	43	4	5	1.70	1.25
Kans.	175	14	90	1.65	1.10
N. Central	5,814	2,643	1,987	1.30	1.41
Del.	301	205	64	1.25	1.25
Md.	514	400	82	1.00	1.70
Va.	858	990	414	1.10	1.40
W. Va.	494	396	110	1.15	1.70
N. Car.	1,857	2,112	2,312	.85	1.00
S. Car.	1,172	1,633	1,610	.85	.80
Ga.	[2] 6,363	5,440	5,610	.75	.80
Fla.	73	57	68	.90	.75
S. Atlantic	11,632	11,233	10,270	.85	.89
Ky.	591	216	434	1.05	1.00
Tenn.	1,459	580	2,325	.95	.80
Ala.	976	908	1,089	.80	.75
Miss.	648	494	781	1.00	.75
Ark.	1,647	672	1,848	1.10	.75
La.	191	158	198	1.10	.75
Okla.	545	108	612	1.20	.85
Tex.	1,384	782	1,287	1.30	1.10
S. Central	7,441	3,918	8,574	1.04	.84
Idaho	135	51	93	1.45	1.15
Colo.	906	578	1,260	1.30	1.00
N. Mex.	78	13	123	1.75	1.20
Ariz.	73	67	48	1.75	1.50
Utah	587	62	558	1.40	.85
Nev.	5	2	6	1.75	1.40
Wash.	927	240	1,200	1.25	.75
Oreg.	241	227	314	1.15	1.05
Calif.	[2] 23,294	[2] 22,085	[2] 20,460	.48	.63
Clingstone [3]	[2] 15,460	[2] 14,626	[2] 13,501	.44	.64
Freestone [4]	[2] 7,834	7,459	6,959	.54	.60
Western	[2] 26,245	[2] 23,325	[2] 24,062	.53	.67
United States	[2] 56,282	[2] 44,692	[2] 45,404	.76	.80

[1] Preliminary.

[2] Includes some quantities not harvested on account of market conditions as follows: 1927, 2,709,000 bushels of clingstone; 1928, 2,917,000 of clingstone in California and 925,000 bushels in Georgia; 1930, 10,139,000 of clingstone, including 6,180,000 sold but left on the trees and 500,000 of freestone; 1931, 8,063,000 of clingstone, including 3,938,000 sold but left on the trees; 1933, 3,647,000 of clingstone, including 1,480,000 sold but left on the trees; 1934, 2,208,000 of clingstone. Prices and value are computed on the quantity actually harvested, plus a quantity of fruit that was sold but left on the trees in 1930, 1931, and 1933.

[3] Mainly for canning.

[4] Mainly for drying.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 226.—*Peaches: Car-lot shipments, United States, by months, 1925–34*

Season	May	June	July	August	September	October [1]	Total
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1925	328	4,951	17,932	9,921	7,420	306	40,858
1926	52	2,209	21,793	24,538	8,847	1,026	58,465
1927	267	5,638	12,464	13,217	9,739	178	41,503
1928	12	1,755	23,122	22,822	8,802	462	56,975
1929	106	2,374	10,429	14,012	8,308	222	35,451
1930	18	2,515	12,956	15,526	7,333	142	38,490
1931	47	2,045	15,765	23,782	4,283	148	46,070
1932		357	3,796	10,690	5,383	525	20,751
1933	7	1,476	9,161	10,388	7,183	48	28,263
1934 [2]	54	1,675	11,656	12,831	356	9	26,581

[1] Figures include shipments in November as follows: 1926, 5 cars; 1932, 3 cars.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included. See 1927 Yearbook, p. 855, for data for earlier years.

TABLE 227.—*Peaches: Car-lot shipments, by State of origin, 1925–34* [1]

State	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	3,055	2,367	1,159	1,744	865	2,310	956	1,920	882	45
New Jersey	1,047	1,145	1,089	41	544	24	88	47	5	1
Pennsylvania	204	828	514	806	732	330	658	587	274	424
Ohio	516	434	441	426	2	98	122	106	2	4
Indiana	18	416	245	398	676	(3)	533		225	1
Illinois	579	3,010	1,591	1,975	4,637	(3)	5,307	46	1,783	318
Michigan	264	675	397	514	312	183	259	292	3	80
Missouri	14	34	14	2	56		83		7	4
Delaware	148	723	524	30	540	31	495	29	2	
Maryland	70	652	366	291	495	83	149	60	156	
Virginia	39	388	461	324	623	19	446	87	747	275
West Virginia	2	353	211	166	246	32	114	39	169	6
North Carolina	2,037	2,155	1,702	3,242	1,250	2,172	2,564	1,833	1,280	1,161
South Carolina	239	448	644	865	602	747	862	523	719	798
Georgia	13,513	17,963	11,882	15,926	5,298	8,623	13,589	2,024	7,896	8,209
Kentucky	6	69	43	87	60		217	3	27	39
Tennessee	605	1,806	292	2,077	1,144	256	1,364	6	245	777
Alabama	224	375	11	325	81	42	232		15	72
Mississippi	32	88		76	60	7	123		5	6
Arkansas	2,300	2,529	1,780	4,013	2,679	41	4,187	233	256	1,658
Oklahoma	113	20	118	17	121		4	3		30
Texas	1,070	964	49	278	569	21	143	20	27	16
Idaho	2	78	38	125	135	1	31	34	22	39
Colorado	834	1,271	1,709	1,117	1,765	1,369	1,507	1,743	847	1,923
Utah	94	774	798	694	550	341	221	447		127
Washington	991	1,419	248	1,741	1,554	609	912	892	121	989
Oregon	47	50	21	76	51	48	29	33	33	27
California	12,785	17,416	15,145	19,589	9,780	21,072	10,859	9,739	12,507	9,531
Other States	10	15	11	10	24	31	16	5	8	21
Total	40,858	58,465	41,503	56,975	35,451	38,490	46,070	20,751	28,263	26,581

[1] Crop-movement season extends from May through October of a given year. Figures for New York for 1926 and 1932 include shipments in November following the regular crop-movement season.
[2] Preliminary
[3] No shipments because of frost killing.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 228.—*Peaches: Average l. c. l. price to jobbers, New York and Chicago, 1925–34*

Market and season	6-basket carrier			Bushel basket				
	June	July	August	June	July	August	September	October
New York:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1925	3.43	2.24	2.23	3.38	2.22	2.18	2.74	2.46
1926	3.14	1.79	1.28	3.05	1.74	1.48	1.26	1.17
1927	3.22	2.59	2.65	3.10	2.80	2.94	2.19	2.59
1928	3.48	2.17	1.62	3.61	2.01	1.69	2.05	1.74
1929	3.86	3.45	2.70	3.85	2.95	2.56	2.52	
1930	3.58	3.22	2.62	4.08	2.94	2.63	2.10	
1931	2.96	2.38	1.22	2.97	2.14	1.50	1.21	
1932	2.98	2.94	1.26		2.81	1.46	1.39	.78
1933	3.06	1.70	1.57	3.14	2.06	1.79	1.93	
1934	2.78	2.33	2.03	2.70	2.20	2.16	3.13	
Chicago:								
1925	3.11	2.35	3.01	3.08	2.45	3.16	2.72	2.38
1926	3.02	1.96	1.53	2.44	2.02	1.79	1.76	1.44
1927	2.30	2.32		2.35	2.66	2.81	2.30	
1928	3.40	2.09	1.44		2.18	1.94	2.15	2.11
1929	4.08	3.45			2.93	2.05	2.31	
1930	3.55	3.18	2.45	2.97	3.04	3.02	2.34	
1931		2.03	1.27		2.01	1.27	1.17	
1932		3.02	1.57		3.05	1.72	1.30	.95
1933	2.34	1.68		2.56	1.94	2.11	2.22	
1934	2.25	1.91	2.11	2.72	2.27	2.47	2.28	

Bureau of Agricultural Economics. Compiled from daily market reports from Bureau representatives in the markets. Average prices as shown are based on stock of good merchantable quality and condition; they are simple averages of daily range of selling prices.

TABLE 229.—*Pears: Total production, average price per bushel received by producers, and exports of the United States, 1919–34*

Year	Production	Price [1]	Farm value, basis average price	Domestic exports year beginning July [2]				
				Fresh [3]	Canned [3]	Dried	Total in terms of fresh	Percentage of production
	1,000 bushels	*Dollars*	*1,000 dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 bushels*	*Percent*
1919	*14,204*							
1919	14,891	1.84	27,376					
1920	17,168	1.68	28,755					
1921	11,241	1.70	19,052					
1922	20,206	1.09	22,052	36,785	49,358		2,823	14.0
1923	16,967	1.24	21,091	50,237	38,431		2,648	15.6
1924	18,412	1.43	26,401	41,452	53,851		3,107	16.9
1925	19,938	1.40	28,020	71,205	75,876		4,645	23.3
1926	24,564	.89	21,926	73,877	66,104		4,293	17.5
1927	[4] 17,991	1.33	23,819	51,056	52,671		3,258	18.1
1928	[4] 23,518	1.01	23,704	82,847	82,652	[5] 2,626	5,388	22.9
1929	*18,500*							
1929	21,138	1.43	30,152	62,024	54,709	3,655	3,876	18.3
1930	[4] 25,665	.75	18,321	134,670	74,355	8,037	6,574	25.6
1931	[4] 23,357	.60	13,676	90,702	71,570	6,079	5,378	23.0
1932	[4] 22,050	.39	7,627	119,987	60,762	6,257	5,553	25.2
1933	[4] 21,192	.55	10,780	111,008	78,384	8,408	6,279	29.6
1934 [6]	[4] 23,474	.70	16,193					

[1] From 1919 to 1925, Nov. 15 price; 1926–34, average price for the crop-marketing season.
[2] Canned pears converted to terms of fresh on the basis that 1 pound canned fruit is equivalent to 2 pounds fresh; dried pears converted to terms of fresh on the basis that dried pears equal 25 percent of fresh; 48 pounds fresh equals 1 bushel. No imports of pears reported. Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1923–26, January and June issues, 1927–34.
[3] Exports were reported in value only prior to July 1, 1922.
[4] Includes some quantities not harvested on account of market conditions as follows: 42,000 bushels in 1927; 62,000 in 1928; 1,292,000 in 1930; 625,000 in 1931; 2,666,000 in 1932; 1,667,000 in 1933, and 375,000 in 1934. Prices and value are computed on the harvested crop.
[5] January–June 1929. Not previously reported.
[6] Preliminary.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board, revised. Italic figures are census returns. Prices are based upon returns from crop reporters.

TABLE 230.—*Pears: Production and average price per bushel received by producers, by States, average 1927–31, and annual 1933 and 1934*

State and division	Production			Price for crop of—	
	Average 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*Dol.*	*Dol.*
Maine	13	11	2	1.05	1.50
N. H.	12	12	5	.95	1.25
Vt.	9	7	3	1.15	1.20
Mass.	54	57	35	.85	1.10
R. I.	8	8	6	1.00	1.15
Conn.	23	20	14	1.00	1.25
N. Y.	1,178	900	1,011	.85	.85
N. J.	111	71	74	.65	.65
Pa.	384	366	385	.75	.75
N. Atlantic	1,792	1,452	1,535	.82	.83
Ohio	341	336	394	.75	.60
Ind.	201	100	178	.65	.55
Ill.	499	320	641	.70	.55
Mich.	546	532	745	.80	.65
Iowa	79	58	74	.95	.90
Mo.	316	146	298	.75	.70
Nebr.	37	17	20	1.40	1.10
Kans.	188	90	145	.95	.80
N. Central	2,206	1,599	2,495	.78	.64
Del.	28	20	17	.85	.60
Md.	106	66	94	.60	.60
Va.	290	270	194	.60	.75
W. Va.	61	57	25	.90	.95
N. C.	206	228	218	.75	.85
S. C.	95	94	84	.80	.80
Ga.	162	114	185	.80	.60
Fla.	50	25	67	.85	.50
S. Atlantic	998	874	884	.72	.72
Ky.	186	80	184	0.80	0.65
Tenn.	240	94	285	.95	.60
Ala.	279	132	326	.85	.60
Miss.	204	85	323	.85	.50
Ark.	136	58	158	.95	.70
La.	64	31	69	1.00	.55
Okla.	166	69	171	1.00	.85
Tex.	409	104	303	1.05	.90
S. Central	1,684	653	1,819	.92	.67
Idaho	65	59	52	1.00	1.10
Colo.	406	271	307	.65	.60
N. Mex.	40	9	49	1.35	.95
Ariz.	15	13	11	1.45	1.45
Utah	74	47	53	1.30	.90
Nev.	4	4	6	1.50	1.25
Wash.	3,429	4,264	4,042	.40	.60
Oreg.	2,554	2,738	2,470	.45	.60
Calif.	[2] 9,067	[2] 9,209	[2] 9,751	.51	.77
Western	[2] 15,654	[2] 16,614	[2] 16,741	.48	.70
United States	[2] 22,334	[2] 21,192	[2] 23,474	.55	.70

[1] Preliminary.
[2] Includes some quantities not harvested on account of market conditions as follows: 42,000 bushels in 1927; 62,000 in 1928; 1,292,000 in 1930; 625,000 in 1931; 1,667,000 in 1933, and 375,000 in 1934. Prices and value are computed on the harvested crop.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 231.—*Pears: Car-lot shipments, by State of origin, 1924–25 to 1933–34*

State	Crop-movement season [1]									
	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	2,978	4,510	2,263	1,694	1,590	547	2,661	831	2,342	1,000
Ohio	47	62	100	130	104	33	77	26	34	11
Illinois	595	614	858	228	370	787	154	1,058	-------	188
Michigan	394	151	457	536	449	147	469	131	490	125
Delaware	273	128	249	49	1	20	13	7	25	-------
Maryland	30	29	33	32	27	42	9	14	36	6
Alabama	27	66	12	93	71	152	135	46	37	-------
Texas	129	121	144	213	39	231	100	105	92	-------
Colorado	955	717	750	737	264	1,082	249	397	125	79
Washington	2,456	3,560	5,278	2,589	5,868	4,035	6,157	4,657	3,743	4,351
Oregon	1,483	2,225	2,909	2,977	4,437	4,211	5,123	2,824	3,574	2,833
California	6,312	8,718	11,673	9,215	11,003	9,465	13,490	9,804	7,329	5,572
Other States	567	356	483	251	211	395	190	157	81	30
Total	16,246	21,257	25,209	18,744	24,434	21,147	28,827	20,057	17,908	14,195

[1] Crop movement season covers 12 months, from June of one year through May of the following year. Figures for California for 1930–31, 1931–32, and 1932–33 include shipments in month preceding and following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 232.—*Peas, green, commercial crop: Acreage, production, and season average price per bushel and per ton received by producers; average 1928–32, and annual 1933 and 1934*

Utilization and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
For market	*Acres* 80,040	*Acres* 110,060	*Acres* 100,420	*1,000 bushels* [1] [2] 6,088	*1,000 bushels* [1] [2] 8,605	*1,000 bushels* [1] 7,442	*Dollars* 1.51	*Dollars* 0.93	*Dollars* 1.29
For manufacture:				*Short tons* [3]	*Short tons* [3]	*Short tons* [3]			
Maine	1,280	1,480	1,850	1,130	1,320	2,330	62.40	44.80	57.20
New York	31,210	27,800	32,000	22,990	14,320	13,280	56.40	41.00	50.40
Pennsylvania	1,830	2,000	3,000	1,520	1,650	3,000	55.60	43.50	50.70
Ohio	4,850	3,800	4,540	3,090	1,420	1,540	45.20	30.00	39.00
Indiana	5,680	4,300	6,000	5,790	1,940	2,610	45.40	32.50	39.00
Illinois	12,550	16,500	9,000	11,190	7,260	2,070	50.80	43.00	48.90
Michigan	10,130	10,700	12,400	6,710	4,550	6,390	45.20	35.00	48.00
Wisconsin	102,400	93,000	112,000	81,830	54,870	71,120	55.90	44.00	50.60
Minnesota	13,940	17,000	14,500	10,800	9,440	5,800	48.80	43.90	44.30
Delaware	2,530	2,250	2,800	1,690	1,960	3,010	57.00	41.30	50.00
Maryland	12,570	11,300	13,500	9,330	9,040	14,850	56.50	45.60	52.40
Montana	3,120	2,540	2,100	3,580	2,790	2,620	44.40	30.00	49.00
Colorado	3,270	2,330	3,480	2,700	1,960	3,430	44.10	33.30	37.40
Utah	9,720	9,300	10,500	11,710	9,070	11,020	54.10	41.50	53.00
Washington	2,080	3,200	10,500	2,190	5,120	9,030	54.30	40.00	50.00
Other States [4]	6,330	9,930	12,200	5,820	10,270	12,670	57.48	46.06	51.46
Total	223,490	217,430	250,370	182,070	136,980	164,770	54.13	42.48	50.08

[1] Bushels containing approximately 30 pounds, unshelled.
[2] Includes some quantities not harvested on account of market conditions; 117,000 bushels in 1932 and 210,000 in 1933. Price refers to harvested portion of crop.
[3] Reported on shelled basis.
[4] Other States includes California, Idaho, Iowa, Kansas, Nebraska, New Jersey, Oklahoma, Oregon, Tennessee, Virginia, and Wyoming.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and canning establishments.

TABLE 233.—*Peas, green: Car-lot shipments, by State of origin, 1925–34* [1]

State	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	885	1,110	975	837	731	892	431	351	123	39
New Jersey	20	27	40	38	28	1	13	1	1	3
Maryland	48	55	54	68	52	2	13			3
Virginia	303	288	259	281	222	120	232	75	90	66
North Carolina	491	596	570	685	368	482	554	284	335	264
South Carolina	104	167	207	247	244	265	256	71	106	95
Florida	5		9	14	31	6	130	146	331	745
Mississippi	149	233	243	250	199	234	282	46	100	166
Idaho	13	40	101	176	238	407	415	349	322	281
Colorado	35	58	149	348	459	463	559	590	445	407
Washington	43	64	111	152	334	791	539	829	1,087	606
California	569	803	1,361	1,642	2,205	3,494	3,016	4,891	5,912	4,103
Other States	42	127	100	63	77	128	120	217	195	153
Total	2,707	3,568	4,179	4,801	5,188	7,294	6,560	7,850	9,047	6,931

[1] Crop-movement season is for calendar year, except Florida and Texas, which begin in October of the preceding year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 234.—*Peas, canned: Pack*[1] *in the United States, 1922–34*

State	Season												
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
New York	2,137	2,541	2,931	2,385	2,624	1,668	2,222	1,683	3,164	1,786	1,021	1,279	1,124
New Jersey[2]	153	199	331	257	143	267	242	383	74	298	49	[3] 220	384
Ohio	225	384	430	232	278	205	336	337	208	398	131	140	156
Indiana	268	367	483	86	500	90	427	404	564	711	412	177	262
Illinois	516	586	697	357	680	563	617	767	1,560	1,003	1,149	671	184
Michigan	455	392	710	451	723	399	542	558	880	434	291	[4]	644
Wisconsin	7,042	6,961	10,390	10,003	9,287	6,549	9,248	9,399	10,492	5,057	3,346	5,163	6,743
Minnesota	[4]	254	470	432	446	497	722	926	1,333	617	1,161	886	528
Maryland	489	591	873	956	840	986	1,030	1,469	400	1,243	689	987	1,657
Utah	751	918	830	1,346	1,029	802	1,154	1,241	1,662	676	752	882	[5] 1,311
California	496	239	282	271	222	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
Other States	510	516	888	1,040	937	910	1,403	1,363	1,698	1,063	1,366	2,488	2,749
United States	13,042	13,948	19,315	17,816	17,709	12,936	17,943	18,530	22,035	13,286	10,367	12,893	15,742

[1] Stated in cases of 24 No. 2 cans.
[2] Includes Delaware through 1932 and in 1934.
[3] Figure for Delaware; New Jersey included in "Other States."
[4] Included in "Other States."
[5] Includes Idaho.

Bureau of Agricultural Economics; compiled from National Canners Association, 1922–26 and 1934; Bureau of the Census, 1927–29; Foodstuffs Division, Bureau of Foreign and Domestic Commerce, 1930–33.

TABLE 235.—*Pecans: Production and price per pound received by producers Dec. 1, by States, average 1927–31, and annual 1933 and 1934*

State	Production									Price, Dec. 1 for—					
	Improved varieties			Seedling varieties			Total			Improved varieties		Seedling varieties		All varieties	
	Average 1927–31	1933	1934[1]	Average 1927–31	1933	1934[1]	Average 1927–31	1933	1934[1]	1933	1934	1933	1934	1933	1934
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*Ct.*	*Ct.*	*Ct.*	*Ct.*	*Ct.*	*Ct.*
Ill	0	0	0	144	150	185	144	150	185	----	----	7.5	10.0	7.5	10.0
Mo	14	22	10	786	1,328	490	800	1,350	500	13.0	20.0	7.0	12.5	7.1	12.6
N. C	481	400	450	260	300	300	741	700	750	19.0	20.0	12.5	16.0	16.3	18.4
S. C	620	1,020	824	166	180	146	786	1,200	970	15.0	17.5	10.0	12.2	14.2	16.7
Ga	5,706	5,860	5,673	634	440	427	6,340	6,300	6,100	12.0	13.8	6.0	8.6	11.6	13.4
Fla	1,166	1,080	800	363	270	200	1,529	1,350	1,000	12.0	15.0	7.0	9.6	11.0	13.9
Ala	2,190	2,650	1,870	432	350	230	2,622	3,000	2,100	15.0	15.0	7.0	9.5	14.1	14.4
Miss	2,294	2,475	975	2,346	2,025	975	4,640	4,500	1,950	12.5	19.0	7.5	13.0	10.2	16.0
Ark	93	120	80	1,617	2,040	1,270	1,710	2,160	1,350	14.5	18.0	6.5	9.0	6.9	9.5
La	741	1,050	328	4,109	5,950	1,842	4,850	7,000	2,170	10.5	17.0	6.0	11.0	6.7	11.9
Okla	67	95	102	11,273	9,405	10,148	11,340	9,500	10,250	13.5	21.0	5.4	11.6	5.5	11.7
Texas	560	720	390	20,160	23,280	12,610	20,720	24,000	13,000	15.0	20.0	5.8	11.0	6.1	11.3
U. S	13,932	15,492	11,502	42,289	45,718	28,823	56,222	61,210	40,325	13.0	15.4	6.0	11.2	7.8	12.4

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 236.—*Peppers, commercial crop for market: Acreage, production, and season average price per bushel received by producers, average 1928–32, annual 1933 and 1934*

Marketing season	Acreage			Production			Price for crop of —		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
Fall	2,200	2,000	1,750	455	374	519	1.67	1.11	1.29
Early	5,440	6,900	4,800	1,397	1,860	1,026	1.35	.47	1.10
Second early	1,950	1,640	1,650	297	294	238	.83	.56	.63
Intermediate	6,350	6,000	5,800	1,503	1,356	1,285	.51	.30	.40
Late	850	1,050	1,200	244	343	431	.82	.50	.67
Total	16,790	17,590	15,200	3,896	4,227	3,499	.93	.48	.78

[1] Bushels containing approximately 25 pounds.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 237.—*Plums and prunes: Production and average price per ton received by producers, by States, average 1927–31, and annual 1933 and 1934*

Crop and State	Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
Fresh basis:					
Plums and prunes, fresh:	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*
California	[2] 62,000	[2] 57,000	61,000	24.35	32.60
Michigan [3]	6,026	5,320	6,830	34.00	36.00
Idaho	21,960	5,000	10,100	18.00	18.00
Washington	16,455	15,795	17,900	17.00	17.00
Oregon	23,680	28,000	38,000	17.00	17.00
Total	[2] 130,121	[2] 111,115	133,830	21.46	25.16
Dry basis:					
Prunes, dried: [4]					
California	[2] 207,260	182,000	170,000	80.00	80.00
Oregon	[2] 24,700	15,000	28,000	70.00	85.00
Washington	3,881	1,850	4,200	74.00	82.00
Total	[2] 235,841	198,850	202,200	79.19	80.73

[1] Preliminary.

[2] Includes some quantities not harvested on account of market conditions as follows: Plums, California, 7,000 tons in 1931 and 7,000 in 1933; prunes, dried, California, 13,000 tons in 1930; Oregon, 8,000 tons in 1930. Prices and value are computed on the harvested crop.

[3] Plums.

[4] To convert California estimates to fresh-fruit basis, multiply by 2½. In the other States, the ratio ranges from 3 to 4 fresh to 1 dried.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 238.—*Potatoes: Acreage, production, value, and foreign trade, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers, Dec. 1 [1]	Farm value, basis Dec. 1 price	Wholesale price per bushel at New York [2]	Foreign trade, year beginning July		
							Domestic exports [3]	Imports [3]	Net balance [3] [4]
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919	*3,252*	*89.3*	*290,428*						
1919	3,300	90.1	297,341	191.1	568,259	284	3,723	6,941	−3,212
1920	3,301	111.8	368,904	133.2	491,561	103	4,803	3,423	+1,399
1921	3,598	90.4	325,312	113.5	369,109	123	2,327	2,110	+222
1922	3,946	106.3	419,288	68.6	287,792	97	2,980	572	+2,408
1923	3,378	108.5	366,356	91.5	335,310	118	3,075	564	+2,512
1924	*2,911*	*121.1*	*352,462*						
1924	3,110	123.7	384,837	71.5	274,972	78	3,653	478	+3,187
1925	2,819	105.6	297,567	166.3	494,765	238	1,824	5,420	−3,575
1926	2,813	114.6	322,350	136.3	439,469	161	2,092	6,349	−4,205
1927	3,166	116.5	368,813	108.9	401,788	129	2,424	3,803	−1,313
1928	3,469	122.7	425,626	57.2	243,542	76	3,165	2,698	+528
1929	*2,944*	*109.5*	*322,416*						
1929	2,973	110.2	327,652	131.5	430,950	163	2,386	6,006	−3,521
1930	3,030	109.8	332,693	91.5	304,558	111	1,548	5,729	−4,155
1931	3,366	110.8	372,994	46.4	173,100	61	816	1,493	−585
1932	3,379	105.9	357,871	39.5	141,328	61	973	440	+534
1933	3,194	100.3	320,203	82.3	263,680	113	721	2,102	−1,381
1934 [5]	3,303	116.6	385,287	51.7	199,251				

[1] Beginning with 1919 prices are weighted average prices for crop-marketing season.
[2] Compiled from Producers Price Current. Prices in 1919 are averages of the high and low weekly quotations of New York potatoes, October–June, converted from dollars per 180 pounds to cents per bushel; beginning 1920, season September–May.
[3] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26, January and June issues, 1927–34, and official records of the Bureau of Foreign and Domestic Commerce.
[4] The difference between total exports (domestic exports plus reexports) and total imports; beginning 1933–34 domestic exports minus imports for consumption. (See introductory text.) + indicates net exports and − indicates net imports.
[5] Preliminary.

Bureau of Agricultural Economics.
Acreage, yield, and production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text. Italic figures are census returns. Prices received by producers are based upon returns from crop reporters.

TABLE 239.—*Potatoes:* [1] *Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State and group	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [2]	Average, 1922–31	1933	1934 [2]	Average, 1927–31	1933	1934 [2]	1933	1934 [2]
Surplus late potato States:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bu.*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Cents*	*Cents*
Maine	173	150	168	251	280	335	43,208	42,000	56,280	70	24
New York	215	200	210	117	123	155	25,386	24,600	32,550	103	49
Pennsylvania	197	189	200	119	113	170	22,764	21,357	34,000	111	55
Total	584	539	578	149.6	163.2	212.5	91,358	87,957	122,830	89.2	39.2
Michigan	247	265	268	99	78	128	21,511	20,670	34,304	74	37
Wisconsin	250	239	261	103	70	120	23,553	16,730	31,320	70	44
Minnesota	344	334	334	94	68	70	30,400	22,712	23,380	61	43
North Dakota	111	150	132	79	62	45	8,685	9,300	5,940	60	53
South Dakota	57	62	43	78	40	30	4,420	2,480	1,290	68	84
Total	1,010	1,050	1,038	94.8	68.5	92.7	88,569	71,892	96,234	66.9	42.4
Nebraska	110	115	115	82	75	30	9,404	8,625	3,450	71	88
Montana	21	23	23	104	85	70	2,195	1,955	1,610	65	75
Idaho	99	95	104	200	230	185	21,388	21,850	19,240	52	45
Wyoming	22	31	25	109	100	40	2,521	3,100	1,000	66	81

See footnotes at end of table.

TABLE 239.—*Potatoes:* [1] *Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*—Continued

State and group	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [2]	Average, 1922–31	1933	1934 [2]	Average, 1927–31	1933	1934 [2]	1933	1934 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bu.*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Cents*	*Cents*
Colorado	99	87	76	152	150	75	15,150	13,050	5,700	61	58
Utah	13	14	13	154	150	80	2,010	2,100	1,040	77	55
Nevada	4	2	2	144	125	105	569	250	210	70	58
Washington	50	41	45	166	180	162	8,567	7,380	7,290	68	53
Oregon	38	39	44	115	160	130	4,757	6,240	5,720	61	55
California	41	33	41	181	240	210	7,593	7,920	8,610	83	56
Total	498	480	488	142.7	151.0	110.4	74,155	72,470	53,870	63.4	54.8
Total, surplus late	2,092	2,069	2,104	121.4	112.3	129.7	254,081	232,319	272,934	74.3	43.4
Other late potato States:											
New Hampshire	9	8	9	134	180	185	1,332	1,440	1,665	107	61
Vermont	16	15	16	129	130	170	2,238	1,950	2,720	105	50
Massachusetts	13	15	16	118	155	160	1,420	2,325	2,560	136	68
Rhode Island	2	2	3	132	185	180	271	370	540	145	73
Connecticut	12	13	15	126	160	175	1,536	2,080	2,625	118	65
Total	52	53	59	126.6	154.1	171.4	6,797	8,165	10,110	119.3	61.5
West Virginia	37	37	40	95	63	78	3,522	2,331	3,120	110	88
Ohio	110	112	109	94	72	105	10,615	8,064	11,445	112	72
Indiana	52	57	62	89	56	100	4,801	3,192	6,200	99	59
Illinois	49	48	52	85	33	52	4,362	1,584	2,704	128	95
Iowa	74	75	77	89	68	63	6,544	5,100	4,851	105	84
Total	323	329	340	90.9	61.6	83.3	29,844	20,271	28,320	109.2	75.2
New Mexico	4	8	7	64	80	70	312	640	490	131	95
Arizona	3	3	3	72	80	60	244	240	180	108	104
Total	7	11	10	68.5	80.0	67.0	556	880	670	124.7	97.5
Total other late	382	393	409	95.7	74.6	95.6	37,197	29,316	39,100	112.5	72.0
30 late States	2,474	2,462	2,513	117.3	106.3	124.2	291,279	261,635	312,034	78.5	47.0
Intermediate potato States:											
New Jersey	42	44	50	151	164	181	7,081	7,216	9,050	137	54
Delaware	5	6	6	87	74	120	430	444	720	101	60
Maryland	32	30	33	104	95	99	3,646	2,850	3,267	104	54
Virginia	113	93	101	127	93	133	15,989	8,649	13,433	99	60
Kentucky	51	62	64	84	66	70	4,365	4,092	4,480	103	80
Missouri	52	54	46	86	52	30	4,867	2,808	1,380	107	90
Kansas	46	42	37	95	58	40	4,988	2,436	1,480	114	83
Total	340	331	337	111.2	86.1	100.3	41,366	28,495	33,810	111.8	62.7
37 late and intermediate States	2,814	2,793	2,850	116.5	103.9	121.3	332,645	290,130	345,844	81.8	48.5
Early potato States:											
North Carolina	74	77	92	98	95	116	7,573	7,315	10,672	87	64
South Carolina	23	16	21	125	109	125	2,944	1,744	2,625	90	89
Georgia	14	18	20	65	57	68	954	1,026	1,360	96	97
Florida	29	18	25	109	124	130	3,192	2,232	3,250	100	114
Tennessee	44	54	60	72	66	72	3,178	3,564	4,320	94	87
Alabama	29	32	40	78	72	94	2,350	2,304	3,760	68	82
Mississippi	10	13	16	72	62	84	748	806	1,344	91	82
Arkansas	34	39	41	75	67	64	2,780	2,613	2,624	86	54
Louisiana	37	41	44	61	57	67	2,356	2,337	2,948	76	73
Oklahoma	43	36	40	74	69	69	3,235	2,484	2,760	95	64
Texas	50	57	54	68	64	70	3,602	3,648	3,780	86	105
Total	386	401	453	82.5	75.0	87.1	32,911	30,073	39,443	87.5	79.7
United States	3,201	3,194	3,303	112.9	100.3	116.6	365,556	320,203	385,287	82.3	51.7

[1] Acreage and production estimates for each State cover the entire crop, whether commercial or noncommercial, early or late.
[2] Preliminary.
Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 240.—*Potatoes, early commercial crop: Acreage, production, and season average price per bushel received by producers, by States; average 1928–32, annual 1933 and 1934*

Group and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels*[1]	*1,000 bushels*[1]	*1,000 bushels*[1]	*Dollars*	*Dollars*	*Dollars*
Fall: Texas	2,400	2,400	2,600	134	96	122	1.21	.63	.95
Early (sec. 1):									
Florida	26,500	17,000	23,500	2,796	2,163	3,128	1.50	.85	1.13
South	4,860	2,500	6,000	353	288	840	1.98	.90	1.20
North	21,640	14,500	17,500	2,443	1,875	2,288	1.43	.84	1.10
Hastings	18,680	12,500	14,500	2,108	1,625	1,958	1.46	.86	1.10
La Crosse	2,360	1,500	2,200	264	188	242	1.29	.84	1.10
West	600	500	800	71	62	88	1.06	.40	1.10
Texas, lower Rio Grande Valley	11,880	10,300	6,600	1,032	855	772	1.54	.94	1.20
Total	38,380	27,300	30,100	3,828	3,018	3,900	1.50	.88	1.14
Early (sec. 2):									
Alabama	12,320	8,000	13,200	1,249	944	1,901	.97	.65	.54
California	14,380	12,600	16,000	2,226	2,545	3,456	.91	.93	.52
Georgia	1,940	800	2,000	264	140	250	1.00	.80	.66
Louisiana	21,200	20,000	23,000	1,541	1,360	1,840	1.01	.72	.50
Mississippi	1,200	1,100	2,000	109	77	240	1.05	.75	.48
South Carolina	16,360	7,000	12,000	2,294	1,155	1,980	.90	.70	.60
Texas, other	14,940	12,400	12,400	1,174	887	982	.92	.67	.64
Eagle Lake-Sugarland-Wharton	10,140	7,500	6,000	763	495	432	.97	.70	.64
Other counties	4,800	4,900	6,400	411	392	550	.83	.63	.64
Total	82,340	61,900	80,600	8,857	7,108	10,649	.93	.78	.55
Second early:									
Arkansas	4,680	5,000	6,000	426	450	432	.72	.87	.45
North Carolina	32,480	27,500	39,000	4,595	4,070	6,474	.80	.77	.50
Oklahoma	11,520	7,000	10,000	1,143	679	1,000	.68	.88	.46
Tennessee	1,780	2,100	2,800	145	189	238	.83	1.05	.75
Total	50,460	41,600	57,800	6,309	5,388	8,144	.77	.80	.50
Intermediate (sec. 1):									
Kansas	16,500	13,500	13,250	2,585	1,236	787	.56	1.31	.52
Kaw Valley	15,520	12,850	12,500	2,395	1,156	712	.54	1.30	.50
Scott County	980	650	750	190	130	75	.72	1.45	.70
Kentucky	5,020	4,500	5,000	596	369	300	.71	1.30	.50
Maryland	9,420	6,100	6,700	1,341	732	871	.67	1.40	.35
Missouri	5,500	6,600	7,300	955	792	292	.65	1.40	.45
Virginia	74,180	53,000	63,000	11,536	5,831	10,012	.73	1.21	.44
Norfolk district	11,140	7,700	8,600	1,656	1,001	1,376	.74	1.10	.47
Eastern Shore	58,820	42,400	51,000	9,301	4,494	8,160	.74	1.25	.44
Other	4,220	2,900	3,400	579	336	476	.67	1.05	.40
Total	110,620	83,700	95,250	17,013	9,010	12,262	.69	1.26	.44
Intermediate (sec. 2):									
Nebraska	1,780	1,700	2,000	354	391	430	.75	1.30	.55
New Jersey	32,200	34,000	39,400	5,632	5,780	7,289	.80	1.23	.50
Total	33,980	35,700	41,400	5,986	6,171	7,719	.80	1.23	.50
Grant total	318,180	252,600	307,750	42,127	30,791	42,796	.84	1.02	.56

[1] Bushels containing approximately 60 pounds.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 241.—*Potatoes: Acreage, yield per acre, and production, specified countries, average 1925–26 to 1929–30, annual 1933–34 and 1934–35*

Country	Acreage			Yield per acre			Production		
	Average 1925–26 to 1929–30	1933–34	1934–35[1]	Average 1925–26 to 1929–30	1933–34	1934–35[1]	Average 1925–26 to 1929–30	1933–34	1934–35[1]
NORTHERN HEMISPHERE	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bu.*	*Bu.*	*Bu.*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
North America:									
Canada	552	528	569	135.1	134.9	141.2	74,579	71,242	80,320
United States	3,048	3,194	3,303	114.3	100.3	116.6	348,402	320,203	385,287
Total	3,600	3,722	3,872	117.5	105.2	120.2	422,981	391,445	465,607
Europe:									
United Kingdom	800	811	765	248.1	253.4	-------	198,501	205,469	-------
Irish Free State	369	341	339	238.1	273.6	-------	87,856	93,286	-------
Norway	120	120	120	263.3	299.1	254.6	31,592	35,890	30,556
Sweden	366	327	327	173.2	222.2	178.7	63,397	72,660	58,422
Denmark	173	190	189	209.5	256.6	-------	36,243	48,762	-------
Netherlands	433	380	351	280.0	295.3	260.7	121,249	112,196	91,490
Belgium	408	404	393	305.4	335.5	297.2	124,585	135,558	116,793
France	3,606	3,436	3,441	145.3	158.3	164.3	523,939	544,064	565,362
Spain	[2] 812	976	-------	[2] 172.0	161.5	-------	[2] 139,671	157,630	-------
Italy	868	985	989	83.9	88.6	100.6	72,837	87,232	99,451
Switzerland	117	117	112	219.6	261.2	256.0	25,691	30,563	28,674
Germany	6,945	7,138	7,181	201.7	226.9	239.4	1,400,991	1,619,331	1,718,865
Austria	453	504	506	183.7	171.7	203.0	83,216	86,527	102,712
Czechoslovakia	1,738	1,819	1,842	178.4	165.7	154.9	310,025	301,373	285,297
Hungary	652	726	723	110.8	93.9	114.5	72,221	68,183	82,780
Yugoslavia	560	615	-------	74.9	86.8	-------	41,930	53,394	-------
Rumania	644	706	-------	117.8	78.2	-------	75,865	55,183	-------
Poland	6,125	6,770	6,915	158.7	153.8	168.8	972,152	1,040,941	1,167,253
Lithuania	347	441	452	155.1	152.0	210.2	53,811	67,035	95,009
Latvia	200	257	266	142.4	200.5	199.7	28,477	51,535	53,123
Estonia	166	169	177	158.1	206.3	168.9	26,245	34,869	29,891
Finland	171	199	212	160.9	236.7	180.2	27,522	47,096	38,213
Union of Soviet Socialist Republics	13,496	13,842	-------	118.8	-------	-------	1,602,822	-------	-------
Total European countries reporting area and production, all years	22,715	23,792	24,007	173.4	182.2	190.1	3,937,950	4,335,053	4,563,891
Estimated European total, excluding Union of Soviet Socialist Republics	26,200	27,600	27,800	-------	-------	-------	4,532,000	4,986,000	5,214,000
Total Northern Hemisphere countries reporting area and production, all years	26,315	27,514	27,879	165.7	171.8	180.4	4,360,931	4,726,498	5,029,498
Estimated Northern Hemisphere total excluding Union of Soviet Socialist Republics and China	30,700	32,300	32,600	-------	-------	-------	5,030,000	5,463,000	5,766,000
SOUTHERN HEMISPHERE									
Chile	93	132	133	145.8	133.2	168.9	13,557	17,576	22,461
Argentina	345	341	-------	85.9	99.1	-------	29,325	33,778	-------
Australia	140	-------	-------	95.1	-------	-------	13,315	-------	-------
Estimated Southern Hemisphere total	2,000	2,400	-------	-------	-------	-------	112,000	-------	-------
Estimated world total excluding Union of Soviet Socialist Republics and China	32,700	34,700	-------	-------	-------	-------	5,142,000	5,612,000	-------

[1] Preliminary.
[2] 4-year average.

Bureau of Agricultural Economics. Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 242.—*Potatoes: Production of certified seed, by States, average 1925–34, annual 1925–34*

State	Average 1925–34	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [1]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
California	12	12	12	18	12	12	4	8	7	12	21
Colorado	147	28	31	77	58	72	52	96	123	506	425
Idaho	311	278	371	866	350	204	315	226	151	212	137
Kentucky	14	15	23	25	9	21	9	9	12	12	9
Maine	3,635	2,226	2,295	3,278	5,094	3,999	2,741	3,944	2,921	3,853	6,003
Maryland	43	8	18	32	22	40	17	66	57	73	95
Michigan	371	215	337	162	855	741	212	194	371	272	349
Minnesota	689	596	694	622	1,163	911	548	662	437	602	659
Montana	100	68	113	181	237	72	69	62	64	61	68
Nebraska	317	121	60	182	152	463	663	384	392	552	196
New Hampshire	21	12	3	15	17	9	35	40	13	30	35
New Jersey	79	58	93	[2]	101	62	50	114	84	124	107
New York	492	211	225	323	470	572	716	819	550	520	513
North Dakota	478	171	182	321	540	412	372	413	825	918	628
Ohio	6	4	6	6	6	7	5	6	7	8	[2]
Oregon	122	28	46	88	154	137	74	137	188	185	187
Pennsylvania	84	26	41	30	60	70	46	91	103	137	241
South Dakota	34	24	29	50	59	63	23	38	40	4	7
Vermont	172	109	160	253	136	137	133	219	179	183	210
Washington	82	17	30	121	82	77	85	115	93	102	101
Wisconsin	237	163	197	243	448	294	261	259	173	150	180
Wyoming	202	21	138	260	350	185	300	187	131	304	143
Total	7,648	4,411	5,104	7,153	10,375	8,560	6,730	8,089	6,921	8,820	10,314

[1] Preliminary.
[2] Less than 500 bushels.

Bureau of Agricultural Economics. Compiled from reports of State seed-potato certifying agencies.

TABLE 243.—*Potatoes: Car-lot shipments, United States, by months, 1925–34*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1925	21,715	20,394	21,639	20,123	20,215	19,798	17,765	14,864	23,569	33,631	16,286	11,524	241,523
1926	16,185	14,834	19,974	14,238	16,903	23,587	20,310	15,327	22,978	36,182	18,419	13,487	232,424
1927	17,974	17,784	21,497	20,283	16,691	22,155	21,053	17,853	25,003	38,333	21,124	13,695	253,445
1928	20,278	22,913	23,710	17,255	23,740	29,675	21,048	16,252	21,127	29,906	18,232	13,207	257,343
1929	20,096	20,472	23,059	20,153	20,360	24,313	19,583	17,395	24,441	31,958	15,706	15,158	253,194
1930	20,302	19,918	22,108	19,769	22,803	25,004	22,326	16,775	22,415	29,076	16,502	15,413	252,411
1931	21,241	20,321	23,888	21,461	24,080	27,276	20,434	12,015	17,715	24,759	14,510	13,303	241,003
1932	17,767	18,923	24,876	21,436	18,385	22,095	15,932	8,465	12,924	14,496	11,941	12,118	199,358
1933	16,745	16,518	24,535	18,206	18,203	21,380	12,016	10,797	17,475	21,942	13,824	12,441	204,082
1934 [1]	21,924	17,323	23,839	19,887	21,611	25,746	17,826	11,517	14,786	21,847	14,844	12,066	223,216

[1] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis, 400 to 700 bushels to a carload. Shipments by truck not included. Data for earlier years in 1928 Yearbook, table 208.

TABLE 244.—*Potatoes: Car-lot shipments, by State of origin, 1924–33*

State	Crop-movement season [1]									
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Maine	43,145	38,850	42,607	40,945	41,111	61,404	53,381	53,224	44,043	48,756
New Hampshire	67	105	130	163	118	119	268	71	19	22
Vermont	161	144	247	223	145	163	503	224	97	70
New York	20,123	11,598	12,573	12,320	13,478	9,208	13,712	10,409	8,058	7,153
New Jersey	8,637	3,355	4,750	6,676	5,367	3,811	6,600	5,179	3,171	5,540
Pennsylvania	3,943	6,027	2,630	3,375	5,829	2,132	600	634	194	573
Ohio	66	617	265	339	296	493	264	144	94	36
Indiana	50	398	163	128	191	118	49	12	20	1
Illinois	270	151	112	14	94	32	54	76	55	9
Michigan	17,450	14,201	16,455	8,568	14,189	6,337	3,379	8,856	9,946	5,129
Wisconsin	16,031	16,025	18,153	15,455	15,850	14,709	10,484	13,351	9,630	5,218
Minnesota	31,695	23,163	25,049	33,482	20,456	22,923	16,346	19,209	14,362	17,123
Iowa	554	220	92	149	427	674	342	171	367	659
Missouri	1,194	919	1,616	1,294	2,362	984	2,016	1,473	2,365	1,599
North Dakota	6,063	4,810	4,815	7,933	6,333	6,026	4,687	7,277	4,526	8,390
South Dakota	1,886	1,024	518	2,537	1,403	2,144	749	79	1,330	552
Nebraska	2,918	4,342	3,228	6,039	4,784	7,212	9,160	8,307	4,294	9,316
Kansas	4,797	2,735	4,062	4,341	4,848	2,440	3,856	2,710	3,124	1,657
Delaware	90	30	52	214	27	54	8	24	13	66
Maryland	2,679	1,512	2,031	3,545	3,123	2,426	2,240	1,752	1,616	1,147
Virginia	23,608	15,882	16,212	23,717	27,679	21,177	21,731	18,644	12,823	9,826
West Virginia	88	88	119	177	360	412	87	165	138	23
North Carolina	6,568	4,040	6,713	7,555	9,736	6,003	7,355	8,681	5,876	7,044
South Carolina	5,268	3,674	5,223	3,943	4,706	3,869	4,544	5,030	1,666	2,009
Georgia	544	255	373	489	321	272	576	808	247	239
Florida	4,382	5,137	4,809	5,410	7,744	5,069	4,802	6,892	2,584	4,035
Kentucky	1,593	735	430	877	718	1,211	518	447	501	335
Tennessee	223	249	313	276	436	272	267	128	119	344
Alabama	2,920	1,046	2,222	2,102	3,133	1,541	2,728	4,712	1,874	2,154
Mississippi	202	30	38	68	147	114	119	368	188	131
Arkansas	449	537	526	508	239	514	814	837	483	683
Louisiana	1,425	1,280	1,429	1,298	1,727	1,102	2,327	4,410	1,656	2,102
Oklahoma	1,262	2,335	2,164	2,130	2,058	2,208	2,755	2,171	1,893	1,366
Texas	1,422	1,431	2,014	3,031	3,468	2,769	5,480	5,045	3,504	2,354
Montana	420	1,509	888	1,376	756	380	537	393	222	369
Idaho	11,942	18,271	17,329	28,365	18,887	19,011	32,903	25,916	22,526	30,066
Wyoming	652	998	763	2,021	1,385	1,731	2,775	2,142	821	2,436
Colorado	12,386	15,422	14,200	17,328	13,714	15,366	18,080	7,529	7,266	12,395
Arizona	15	27	64	61	75	50	49	80	70	73
Utah	727	1,162	1,078	954	454	939	1,044	954	613	723
Nevada	452	719	780	942	595	442	593	248	223	201
Washington	6,654	8,880	9,842	9,602	8,054	8,097	7,988	6,993	4,996	5,920
Oregon	927	1,494	2,719	2,339	1,653	1,560	2,881	3,068	2,515	4,110
California	6,492	6,159	7,184	7,904	7,666	7,769	7,887	6,959	5,742	8,757
Other States	10	55	48	56	23	58	39	21	95	50
Total	252,450	221,621	237,028	270,209	256,165	245,285	257,577	245,823	185,965	210,761

[1] Crop-movement season covers 19 months, from December through the second following June; i. e., the 1924 season begins in December 1923 and ends June 1925.

[2] Preliminary beginning January 1934.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis, 400 to 700 bushels to a carload. Shipments by truck not included.

TABLE 245.—*Potatoes: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	125.5	155.4	121.1	125.6	198.4	201.5	220.5	226.0	225.6	270.5	244.8	190.1	166.3
1926–27	174.6	140.5	130.6	126.4	141.3	137.0	139.1	134.1	127.0	126.8	146.0	191.0	136.3
1927–28	183.1	146.3	107.4	97.9	95.4	94.1	93.6	96.2	113.1	116.8	103.3	83.6	108.9
1928–29	77.4	71.9	64.8	58.0	56.9	57.7	58.9	59.5	58.4	55.3	59.3	64.0	57.2
1929–30	87.7	139.1	136.0	138.2	134.8	135.3	137.8	139.1	136.3	145.8	149.9	148.6	131.5
1930–31	129.4	108.8	109.9	101.4	95.0	89.8	90.3	86.7	84.9	90.8	87.0	75.3	91.5
1931–32	82.5	76.7	60.1	45.8	45.3	45.7	47.1	44.8	45.7	46.4	47.0	44.4	46.4
1932–33	48.8	51.4	38.0	34.4	34.4	36.8	37.4	37.0	39.0	42.4	43.7	49.4	39.5
1933–34	97.9	131.0	100.8	74.9	68.8	69.4	77.2	87.7	92.0	83.4	73.7	64.4	82.3
1934–35	66.9	68.0	62.8	49.0	45.9	45.4							[1] 51.7

[1] Preliminary

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 210. Only monthly prices are comparable.

TABLE 246.—*Potatoes: Average price per 100 pounds to jobbers, New York and Chicago, 1919–20 to 1934–35*

NEW YORK, LESS-THAN-CAR-LOT PRICE TO JOBBERS

Season	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1919–20				$6.25	$4.29	$4.37	$3.43	$3.39	$2.79	$2.57	$2.63	$3.09	$4.23	$4.49	$5.49	$7.58	$7.19	
1920–21					9.03	6.93	5.54	2.56	1.83	1.93	1.96	1.82	1.80	1.31	1.51	1.28		
1921–22				4.41	4.18	1.90	2.23	2.90	2.11	2.09	1.92	2.07	2.33	2.18	2.03	1.79	1.58	
1922–23				4.07	3.27	3.03	1.81	1.04	.95	.96	1.22	1.36	1.39	1.44	1.87	2.09	1.76	[1] $1.52
1923–24				7.24	4.13	3.08	3.08	2.57	1.49	1.85	1.67	1.59	1.96	2.01	1.96	2.12	1.73	
1924–25				5.92	4.12	2.34	1.48	1.41	1.37	1.33	1.22	1.26	1.46	1.56	1.21	1.20	1.36	1.35
1925–26			$6.33	4.03	3.34	2.83	3.18	2.83	2.43	3.23	4.09	4.20	4.61	4.57	4.67	5.64	4.10	3.29
1926–27				8.84	6.29	3.78	2.29	2.38	2.57	2.89	2.99	2.92	2.80	2.48	2.45	2.46	3.64	4.00
1927–28			[1] 7.08	4.15	4.50	4.03	2.07	1.83	2.11	2.26	2.26	2.17	2.25	2.64	2.95	2.68	1.94	
1928–29				6.32	2.89	1.54	1.02	1.24	1.34	1.37	1.32	1.41	1.52	1.45	1.36	1.48	1.67	1.32
1929–30			4.82	4.13	3.71	2.30	2.80	3.27	3.04	3.14	3.08	3.05	3.14	3.03	2.77	2.99	2.74	2.41
1930–31			5.82	4.70	4.15	2.80	1.71	1.61	2.03	1.91	1.78	2.03	2.13	2.02	2.01	2.05	1.81	
1931–32			5.01	4.81	2.49	1.50	1.31	1.22	.97	.96	1.04	1.11	1.13	1.11	1.14	1.13	1.11	.89
1932–33		$3.44	3.14	4.23	4.27	1.71	1.28	.91	.89	.94	1.06	1.16	1.14	1.11	1.12	1.11	1.01	1.22
1933–34		3.44	2.94	2.49	2.06	1.97	2.73	2.30	2.11	1.84	1.67	1.80	2.06	2.32	2.34	2.03	1.62	1.24
1934–35	[1] $3.58	3.51	3.25	3.23	2.66	1.46	.95	[2] .93	[2] 1.00	.92	1.00	.99						

CHICAGO, CAR-LOT SALES PRICE TO JOBBERS

1919–20				[3] $6.40	$5.32	$4.33	$4.18	$3.99	$2.73	$2.40	$2.90	$3.17	$4.47	$4.33	$5.47	$6.97	$7.43	
1920–21					[3] 10.05	8.62	6.49	3.43	2.41	1.85	2.09	1.51	1.25	1.15	1.25	.98	.87	
1921–22				[3] 5.26	3.35	2.41	2.45	2.16	2.64	1.98	1.62	1.80	1.98	1.89	1.77	1.64	1.60	[1] 2.05
1922–23				[3] 4.48	[3] 3.80	3.11	2.21	1.64	1.18	1.00	.88	.88	.91	.96	1.17	1.27	1.02	[1] .86
1923–24				[3] 17.09	[3] 5.05	3.21	2.78	2.18	1.69	1.06	.99	1.06	1.40	1.34	1.36	1.32	1.27	1.46
1924–25				[3] 6.27	2.88	2.51	1.80	1.39	1.32	.96	.98	1.20	1.13	1.11	1.09	.84	1.16	1.24
1925–26			[3] $8.24	[3] 4.75	3.42	2.96	3.21	2.68	1.99	2.66	3.45	3.65	4.03	3.74	4.01	4.51	3.09	2.78
1926–27				[3] 8.59	[3] 6.57	3.91	2.35	2.22	2.45	2.47	2.41	2.23	2.28	1.98	1.96	2.11	3.18	3.91
1927–28			[3] 7.61	[3] 4.52	4.48	4.65	2.30	2.02	1.70	1.53	1.53	1.53	1.52	1.78	2.17	1.85	1.40	1.00
1928–29	[3] $4.38	[3] $5.98	[3] 7.28	[3] 5.95	3.10	1.74	1.15	1.06	1.04	.91	.89	.92	1.00	1.00	.85	.71	.81	.84
1929–30				[3] 3.94	4.04	2.71	2.78	2.43	2.49	2.40	2.31	2.34	2.57	2.49	2.44	2.87	2.76	
1930–31			[3] 6.46	[3] 5.87	4.48	3.57	3.01	1.82	1.89	2.10	1.77	1.62	1.55	1.63	1.50	1.59	1.66	1.29
1931–32				[3] 4.73	[3] 4.45	2.30	1.56	1.58	1.45	1.05	.90	.92	1.02	.98	.94	.99	.90	.82	.80
1932–33				[3] 3.78	[3] 3.48	3.16	1.47	1.14	.77	.79	.68	.76	.88	.88	.90	.93	.83	.71	1.30
1933–34		[3] 1 3.57		[3] 3.42	[3] 3.09	1.92	2.24	3.04	2.65	1.71	1.31	1.30	1.37	1.87	2.03	1.72	1.47	1.23
1934–35		[3] 1 3.66		[3] 3.53	[3] 3.24	2.24	1.57	1.45	1.54	1.37	1.20	1.28	1.20					

[1] Less than 10 quotations. [2] Street sales. [3] Less-than-car-lot sales to jobbers.

Bureau of Agricultural Economics.

Compiled from daily market reports from Bureau representatives in the markets. Average prices as shown are based on stock of U. S. No. 1 grade; they are simple averages of daily range of selling prices. In some cases conversions were made from larger to smaller units, or vice versa, in order to obtain comparability. Prices do not include Russet Burbanks.

In this table the potato season begins in January of one year and extends through June of the next year. Thus the $7.19 in May 1920 on first line is the price of the last of old-crop potatoes, and the $9.03 in May 1920 on second line is the price of early or new-crop potatoes that month.

TABLE 247.—*Potatoes, Idaho, Russet Burbanks: Average car-lot price per 100 pounds to jobbers at Chicago, 1924–25 to 1934–35*

Season	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1924–25				$2.04		$2.30	$2.59	$2.41	$2.44	
1925–26				3.99	$3.67	4.19	3.95	4.15	4.78	$3.51
1926–27			$2.84	2.93	2.75	2.83	2.75	2.88	3.24	4.24
1927–28		$2.33	1.78	1.75	1.59	1.73	1.89	2.51	1.97	1.50
1928–29			1.63	1.65	1.60	1.64	1.68	1.60	1.83	1.95
1929–30		3.11	2.98	2.86	2.88	3.18	3.14	3.19	3.79	3.59
1930–31	[1] $2.48	2.71	2.18	1.88	1.82	1.84	1.62	1.67	1.70	1.51
1931–32	1.84	1.72	1.43	1.39	1.52	1.54	1.40	1.38	1.32	1.25
1932–33		1.30	1.14	1.19	1.17	1.19	1.23	1.22	1.37	1.43
1933–34	2.68	2.00	1.61	1.63	1.61	1.96	2.10	1.91	1.66	1.44
1934–35	1.72	1.73	1.51	1.57	1.55					

[1] Less-than-car-lot sales to jobbers.

Bureau of Agricultural Economics; compiled from daily market reports from the Bureau representative at the market.

Average prices as shown are based on stock of U. S. No. 1 grade; they are simple averages of daily range of selling prices.

TABLE 248.—*Potatoes: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Netherlands	17,967	659	20,602	373	18,678	1,072	18,532	393	9,414	341
Belgium	9,012	5,090	9,726	9,562	9,958	10,880	9,993	6,163	1,168	4,384
Italy	7,761	1,933	4,853	1,960	4,533	4,215	4,987	1,939	4,249	1,150
Canada	7,118	688	7,128	844	6,136	329	2,061	188	1,925	180
Poland	3,855	12	1,478	4	4,794	9	2,634	5	882	1
Hungary	2,773	262	1,899	94	3,089	53	755	14	672	17
Spain	2,341	1,226	2,576	762	4,018	745	6,244	751	3,510	659
Argentina	2,138	213	2,616	557	1,591	18	1,393	70	1,193	396
Algeria	1,475	1,413	1,552	1,898	1,075	1,837	1,395	2,009	1,749	1,592
Czechoslovakia	1,062	951	347	443	139	423	88	293	1	448
Estonia	886	1	412	0	974	1	621	0	175	0
Irish Free State	865	647	386	557	1,271	320	1,038	161	485	0
Union of Soviet Socialist Republics	756	[2] 9	1	0	4	0	0	0	0	0
Japan	606	0	752	0	772	0	662	0	867	0
China	193	0	365	0	455	0	449	62	393	32
Total	58,808	13,104	54,693	17,054	57,487	19,902	50,852	12,048	26,683	9,200
PRINCIPAL IMPORTING COUNTRIES										
Germany	5,346	16,623	3,671	11,755	18,175	4,355	7,425	4,613	1,259	2,619
United Kingdom	2,779	14,071	2,066	10,735	1,694	31,039	1,953	28,979	1,610	7,333
France	9,850	12,205	7,563	9,191	6,768	16,332	2,938	8,026	2,378	3,530
United States	2,434	4,284	1,899	5,060	1,060	4,567	912	727	719	1,180
Cuba	75	3,903	83	2,393	61	1,149	27	974		
Austria	865	2,596	223	1,625	204	986	241	604	11	661
Switzerland	4	2,326	1	3,336	4	2,694	3	2,236	1	1,594
Portugal	120	1,748	63	2,489	140	1,069	218	435		
Uruguay	1	1,483	1	1,846	0	[3] 917	0	[3] 1,255		
Brazil	0	1,182	0	1,093	4	265	3	219		416
Egypt	139	845	43	765	242	544	121	603	32	538
Denmark	67	719	38	332	794	210	980	72	75	4
Finland	1	624	0	256	7	81	7	106		177
Yugoslavia	98	469	67	84	34	25	4	139	6	15
Sweden	36	422	1	74	28	543	294	158	5	18
Tunis	2	411	1	510	2	482	1	499	0	494
Philippine Islands	0	358	0	340	0	468	0	457	0	
Venezuela	0	161	0	260	0	269	0	229	0	196
Norway	44	62	21	1	228	28	479	0	57	0
Total	21,861	64,492	15,741	52,145	29,445	66,023	15,606	50,331	6,153	18,775

[1] Preliminary.
[2] 3-year average.
[3] International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted. These figures do not include sweetpotatoes.

TABLE 249.—*Sweetpotatoes: Acreage, production, weighted average price per bushel received by producers, and value, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Price	Farm value, basis weighted average price	Year	Acreage harvested	Average yield per acre	Production	Price	Farm value, basis weighted average price
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*		*1,000 acres*	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*
1919	*803*	*97.3*	*78,092*			1927	724	98.3	71,156	109.0	77,539
1919	792	99.0	78,422	169.2	132,676	1928	638	93.5	59,650	118.4	70,637
1920	768	100.4	77,124	141.9	109,416	*1929*	*650*	*100.3*	*65,193*		
1921	819	90.3	73,958	113.5	83,947	1929	646	100.6	64,963	117.1	76,081
1922	819	96.1	78,665	100.8	79,306	1930	649	81.8	53,117	108.2	57,482
1923	675	94.9	64,041	121.0	77,474	1931	785	80.3	63,043	72.5	45,688
1924	*467*	*80.2*	*37,444*			1932	926	84.7	78,431	53.7	42,154
1924	567	79.7	45,201	150.0	67,790	1933	759	85.8	65,134	69.7	45,411
1925	637	78.2	49,845	165.4	82,448	1934 [1]	762	88.5	67,400	80.7	54,389
1926	646	98.3	63,531	117.5	74,629						

[1] Preliminary.

Bureau of Agricultural Economics.

Acreage, yield, and production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text. Italic figures are census returns. Prices are based upon returns from crop reporters.

TABLE 250.—*Sweetpotatoes: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bu.*	*Bu.*	*Bu.*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
New Jersey	12	12	13	128	175	155	1,580	2,100	2,015	80	89
Indiana	3	4	4	118	100	110	337	400	440	97	95
Illinois	5	6	7	91	70	80	478	420	560	89	80
Iowa	2	3	3	91	90	60	231	270	180	132	131
Missouri	9	10	11	94	75	51	847	750	561	87	96
Kansas	5	5	5	117	98	65	531	490	325	95	122
Delaware	7	7	6	135	130	135	898	910	810	77	70
Maryland	9	6	5	151	160	150	1,493	960	750	67	79
Virginia	37	35	34	127	111	115	4,602	3,885	3,910	66	76
North Carolina	69	85	82	98	93	108	6,794	7,905	8,856	66	77
South Carolina	48	56	54	82	83	82	4,247	4,648	4,428	63	71
Georgia	86	95	89	76	80	80	6,488	7,600	7,120	68	93
Florida	20	21	20	85	70	90	1,710	1,470	1,800	75	96
Kentucky	16	20	19	88	92	95	1,331	1,840	1,805	79	70
Tennessee	57	50	60	97	90	103	5,165	4,500	6,180	74	66
Alabama	70	76	81	84	71	94	5,929	5,396	7,614	71	87
Mississippi	54	63	71	92	90	106	5,352	5,670	7,526	65	79
Arkansas	26	28	27	90	85	60	2,363	2,380	1,620	66	86
Louisiana	69	74	80	74	70	73	5,253	5,180	5,840	65	73
Oklahoma	17	15	14	87	78	55	1,461	1,170	770	63	89
Texas	55	78	66	77	80	50	4,200	6,240	3,300	65	90
California	11	10	11	101	95	90	1,043	950	990	120	90
United States	668	759	762	90.2	85.8	88.5	62,386	65,134	67,400	69.7	80.7

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 251.—*Sweetpotatoes: Car-lot shipments, by State of origin, 1924–25 to 1933–34*

State	Crop-movement season [1]									
	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New Jersey	1,894	1,357	1,770	1,225	1,223	1,090	1,078	1,531	844	1,554
Indiana	103	236	284	209	231	352	355	484	319	112
Illinois	73	101	151	119	85	164	193	211	281	32
Delaware	1,750	1,742	1,885	1,517	1,470	1,454	771	1,346	736	991
Maryland	1,155	1,520	2,283	2,256	2,106	1,859	975	862	434	493
Virginia	5,213	4,750	6,501	6,618	6,480	7,090	5,361	4,973	3,262	2,920
North Carolina	816	1,510	1,683	1,711	760	729	883	592	584	415
South Carolina	120	231	162	276	130	375	337	70	195	101
Georgia	1,018	674	678	667	227	527	348	335	148	76
Florida	175	241	185	159	69	125	114	166	70	32
Kentucky	31	90	302	185	121	268	222	479	334	104
Tennessee	1,137	2,592	4,972	3,587	2,915	3,692	2,903	2,410	2,498	1,086
Alabama	649	663	515	574	393	570	320	362	158	175
Mississippi	36	156	79	211	126	271	219	133	22	69
Arkansas	371	476	548	392	316	207	175	128	46	172
Louisiana	538	2,340	1,285	1,147	981	1,463	1,224	1,315	963	1,017
Oklahoma	107	216	268	294	255	102	78	16	40	66
Texas	221	485	702	1,284	717	802	717	593	238	349
California	466	1,161	1,186	805	767	728	869	632	520	481
Other States	174	318	316	187	173	174	234	190	186	73
Total	16,067	20,859	25,755	23,423	19,545	22,042	17,376	16,828	11,878	10,318

[1] Crop-movement season covers 12 months, from July of one year through June of the following year. Figures for certain States include shipments for month preceding or following the regular crop-movement season.

[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 252.—*Sweetpotatoes: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	188.7	196.3	177.4	169.4	144.4	141.5	149.3	162.4	171.4	180.4	192.2	198.8	165.4
1926–27	185.6	189.0	153.9	110.6	88.5	94.0	97.8	109.0	112.3	112.8	118.9	136.0	117.5
1927–28	136.4	146.7	121.9	98.1	86.5	91.9	93.4	98.6	109.6	115.1	121.4	124.7	109.0
1928–29	119.5	131.0	120.9	111.2	100.2	101.8	104.2	113.7	117.0	120.8	125.9	129.8	118.4
1929–30	135.9	136.2	127.9	112.5	97.7	98.9	103.1	109.6	114.6	118.3	126.4	128.6	117.1
1930–31	125.0	136.3	128.7	110.7	93.8	94.1	98.1	100.8	105.5	113.7	115.2	108.5	108.2
1931–32	101.1	107.8	81.4	66.1	58.2	58.5	61.4	61.8	64.4	64.0	64.6	62.5	72.5
1932–33	63.9	68.1	55.3	44.0	37.7	38.9	42.2	43.5	46.6	49.9	55.8	57.5	53.7
1933–34	67.8	93.0	76.2	63.3	56.4	60.5	67.2	72.7	78.2	81.0	82.8	86.8	69.7
1934–35	87.0	97.5	87.9	74.8	65.0	67.9	------	------	------	------	------	------	[1] 80.7

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 221. Only monthly prices are comparable.

TABLE 253.—*Sweetpotatoes: Average l. c. l. price per bushel to jobbers, New York and Chicago, 1925–26 to 1934–35*

Market, and season	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
New York:										
1925–26	$1.53	$1.70	$1.68	$1.70	$2.23	$2.61	$2.59	$2.96	$3.42	
1926–27	2.21	1.47	.97	.98	1.24	1.37	1.46	1.61	1.81	$2.09
1927–28	1.31	1.13	.93	1.29	1.48	1.66	1.88	2.08	2.04	
1928–29	1.57	1.29	1.05	1.31	1.62	1.88	2.14	2.32		
1929–30	1.60	1.34	1.09	1.28	1.60	1.58	1.46	1.66	2.06	
1930–31	1.77	1.40	1.21	1.26	1.56	1.90	2.15	2.09		
1931–32	1.21	.67	.56	.56	.57	.56	.67	.68	.74	
1932–33	.81	.60	.54	.54	.61	.73	.82	.97	1.01	1.16
1933–34	1.43	.79	.65	.70	.82	1.01	1.07	1.20	1.30	1.47
1934–35	1.65	1.01	.83	.92	1.06					
Chicago:										
1925–26	2.04	2.04	2.02	2.25	2.42	2.37	2.29	2.40	2.98	
1926–27	2.23	1.72	1.30	1.37	1.69	1.70	1.66	1.52	1.23	1.44
1927–28	1.54	1.55	1.39	1.44	[1] 1.68	[1] 2.16	[1] 2.51	[1] 2.09	[1] 2.22	
1928–29	2.01	1.69	1.46	1.92	[1] 2.30	[1] 2.40	[1] 2.49	[1] 2.37		
1929–30	1.76	1.83	1.57	[1] 1.64	1.78	[1] 1.90	2.06	2.22	2.61	
1930–31	2.21	1.81	1.59	1.77	1.74	1.88	2.02	2.26		
1931–32	1.12	1.06	.89	1.03	.97	.88	1.02	.99	.95	
1932–33	.94	1.13	.93	.94	1.08	.98	.99	1.05	.76	.50
1933–34	1.64	1.22	1.14	1.19	1.46	1.50	1.54	1.71	1.70	1.78
1934–35	1.60	1.50	1.24	1.41	1.48					

[1] Kiln-dried.

Bureau of Agricultural Economics; compiled from daily market reports from Bureau representatives in the markets.

Average prices as shown are based on stock of good merchantable quality and condition; they are simple averages of daily range of selling prices. In some cases conversions have been made from larger to smaller units or vice versa, in order to obtain comparability.

TABLE 254.—*Spinach, commercial crop: Acreage, production, and season average price per bushel and per ton received by producers; average 1928–32, annual 1933 and 1934*

Utilization	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	47,760	64,010	54,590	[2] 12,580	11,546	10,928	0.49	0.37	0.40
				Short tons	*Short tons*	*Short tons*			
For manufacture	11,110	10,100	15,290	52,700	36,000	41,300	14.97	12.03	11.86

[1] Bushels containing approximately 18 pounds.

[2] Includes some quantities not harvested on account of market conditions: 3,195,000 bushels in 1929; 19,000 in 1931, and 31,000 in 1932. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and canning establishments.

TABLE 255.—*Spinach: Car-lot shipments, by State of origin, 1923–34*

State	Crop-movement season [1]											
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	24	23	12	12	14	24	102	41	46	53	42	51
Missouri	46	103	113	100	33	100	27	34	50	50	127	246
Maryland	798	725	619	846	670	749	628	172	441	102	56	35
Virginia	3,208	3,107	2,946	2,669	3,213	3,066	2,974	2,586	1,332	1,127	1,963	1,174
South Carolina	422	161	501	614	462	282	110	75	82	5	11	30
Arkansas	2	3	24	37	47	191	84	141	127	62	68	95
Texas	2,433	3,038	3,235	4,513	4,495	5,528	5,559	6,085	7,302	6,669	5,877	6,202
California	473	70	241	305	445	334	494	177	71	100	101	22
Washington	23	40	123	121	145	156	154	207	170	145	161	102
Other States	151	237	105	166	131	163	216	118	152	81	113	106
Total	7,580	7,507	7,919	9,383	9,655	10,593	10,348	9,636	9,773	8,394	8,519	8,063

[1] Crop-movement season covers 15 months, from October of the preceding year through December of the year shown. Figures for Maryland, Washington, and New Jersey, include shipments in January succeeding the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 256.—*Strawberries, commercial crop: Acreage, production, and season average price per crate received by producers, by States; average 1928–32, annual 1933 and 1934*

Group and State	Acreage			Production [1]			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
Early:	*Acres*	*Acres*	*Acres*	*1,000 crates* [2]	*1,000 crates* [2]	*1,000 crates* [2]	*Dollars*	*Dollars*	*Dollars*
Alabama	5,240	4,460	3,150	368	334	220	2.74	0.95	1.40
Florida	7,500	11,200	9,000	529	784	675	6.19	3.00	4.20
Louisiana	25,180	26,000	27,000	[3] 1,434	[3] 1,248	[3] 1,242	4.70	2.90	3.05
Mississippi	1,460	3,100	1,400	84	124	[3] 77	2.98	1.05	1.60
Texas	2,090	2,000	2,160	112	80	184	4.42	2.85	3.35
Total	41,470	46,760	42,710	[3] 2,527	[3] 2,570	[3] 2,398	4.64	2.56	3.24
Second early:									
Arkansas	16,880	19,500	22,000	819	[3] 897	[3] 1,518	2.61	1.45	1.30
California, southern district	1,580	1,600	1,150	338	352	205	3.70	2.64	2.32
Georgia	340	400	450	18	24	27	2.59	1.00	1.90
North Carolina	6,280	6,500	6,800	622	670	476	2.67	1.77	2.25
South Carolina	390	550	650	29	44	39	2.77	1.72	2.00
Tennessee	14,500	20,000	19,400	800	[3] 1,240	[3] 1,048	2.23	1.05	1.10
Virginia	7,740	7,800	7,700	567	[3] 702	[3] 732	2.39	1.15	1.30
Total	47,710	56,350	58,150	3,193	[3] 3,929	[3] 4,045	2.60	1.46	1.44

See footnotes at end of table.

TABLE 256.—*Strawberries, commercial crop: Acreage, production, and season average price per crate received by producers, by States; average 1928–32, annual 1933 and 1934*—Continued

Group and State	Acreage			Production [1]			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 crates* [2]	*1,000 crates* [2]	*1,000 crates* [2]	*Dollars*	*Dollars*	*Dollars*
Intermediate:									
California, other	2,360	3,010	3,280	450	572	784	3.34	2.21	2.27
Delaware	3,900	3,900	3,700	313	[3] 410	352	2.23	.85	1.50
Illinois	4,590	6,000	6,400	252	420	320	2.63	1.35	1.75
Kansas	920	900	800	45	45	16	2.79	1.75	2.00
Kentucky	5,690	9,000	8,600	371	[3] 540	533	2.99	1.20	1.65
Maryland	8,280	8,060	7,250	555	[3] 846	652	2.26	.95	1.25
Missouri	18,120	14,800	16,000	795	[3] 740	[3] 720	2.95	1.60	1.75
New Jersey	4,700	6,500	6,500	405	630	540	2.51	1.44	1.70
Oklahoma	1,480	1,800	1,900	49	50	[3] 76	2.66	1.90	1.55
Total	50,040	53,970	54,430	3,235	[3] 4,253	[3] 3,993	2.69	1.41	1.73
Late:									
Indiana	1,590	2,150	2,100	117	183	74	2.68	1.20	1.90
Iowa	2,720	2,900	3,000	172	145	66	3.49	2.10	2.40
Michigan	4,980	5,550	5,700	343	361	285	3.27	1.40	1.60
New York	4,550	4,810	5,050	421	457	505	3.44	1.90	2.40
Ohio	2,640	2,700	2,700	160	176	189	3.34	1.65	2.20
Oregon	10,400	6,180	8,500	741	297	[3] 595	2.81	1.65	1.60
Pennsylvania	2,940	3,100	3,250	268	239	260	2.95	1.50	2.20
Utah	1,430	1,500	1,420	98	93	43	2.54	1.70	1.70
Washington	8,230	7,200	7,500	567	360	[3] 638	2.92	1.70	1.35
Wisconsin	2,890	3,000	3,150	193	195	173	3.53	1.90	2.00
Total	42,370	39,090	42,370	3,080	2,506	[3] 2,828	3.07	1.67	1.86
Grand total	181,590	196,170	197,660	[3] 12,035	[3] 13,258	[3] 13,264	3.14	1.70	1.94

[1] Includes undetermined quantities used for canning, cold pack, etc.

[2] 24-quart crates containing approximately 36 pounds.

[3] Including some quantities not harvested on account of market conditions: Early—Alabama, 25,000 crates in 1934; Louisiana, 70,000 crates in 1928, 168,000 in 1929, 412,000 in 1932, 208,000 in 1933, and 135,000 in 1934; Mississippi, 15,000 crates in 1934; second early-Arkansas, 97,000 crates in 1933 and 198,000 in 1934; Tennessee, 200,000 crates in 1933, and 136,000 in 1934; Virginia, 117,000 crates in 1933 and 62,000 in 1934; intermediate-Delaware, 82,000 crates in 1933; Kentucky, 90,000 crates in 1933 and 60,000 in 1934; Maryland, 121,000 crates in 1933; Missouri, 80,000 crates in 1932, 118,000 in 1933, and 112,000 in 1934; Oklahoma, 13,000 crates in 1934; late-Oregon, 85,000 crates in 1934; Washington, 113,000 crates in 1934. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 257.—*Strawberries: Car-lot shipments, by State of origin, 1929–34*

Group and State	Calendar year [1]					
	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Early:						
Alabama	1,354	771	1,154	755	893	450
Florida	1,633	1,721	1,862	1,760	2,084	1,830
Louisiana	2,859	2,389	4,720	2,064	2,610	2,778
Mississippi	115	74	127	131	114	73
Texas	253	92	65	38	39	106
Other States	1	6	3			3
Total	6,215	5,053	7,931	5,348	5,740	5,240
Second early:						
Arkansas	2,488	688	578	1,721	1,092	2,144
California (southern district)	10	16	13	75	62	18
Georgia	17	9	14	11	13	11
North Carolina	1,483	756	1,228	619	849	306
South Carolina	30	9	44	58	74	35
Tennessee	2,151	1,158	1,066	1,282	1,632	1,217
Virginia	849	335	525	393	475	198
Total	7,028	2,971	3,468	4,159	4,197	3,929
Intermediate:						
California (other)	162	203	174	366	385	405
Delaware	418	203	111	94	158	241
Illinois	273	163	119	175	211	138
Indiana	105	33	64	150	188	38
Iowa	52	48	36	44	22	
Kansas	63	29	23	13	15	1
Kentucky	851	404	395	1,070	988	979
Maryland	734	424	352	326	358	241
Missouri	2,062	807	692	795	765	611
New Jersey	176	106	60	67	41	39
Oklahoma	111	39	3	12	14	54
Total	5,007	2,459	2,029	3,112	3,145	2,747
Late:						
Massachusetts	47	44	21	21	11	15
Michigan	79	57	53	71	102	18
New York	55	31	58	85	24	25
Oregon	103	35	40	112	2	11
Washington	61	12	23	32	2	23
Wisconsin	26	7	8	59	18	32
Other States	5		9	7	10	14
Total	376	186	212	387	169	138
Grand total	18,626	10,669	13,640	13,006	13,251	12,054

[1] Crop movement is for calendar year, except Florida and Texas starting with 1933 season, which begin in December of the preceding year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 258.—*Tomatoes: Commercial acreage, season average price received by producers, and production; imports and exports, United States, 1924–34*

Year	Commercial acreage		Season average price received by producers		Commercial production		Imports, year beginning July			Exports, year beginning July	
	For market	For manufacture	For market, per bushel [1]	For manufacture, per ton [2]	For market	For manufacture	Fresh	Canned [3]	Paste	Canned	Catsup and sauces
	Acres	*Acres*	*Dollars*	*Dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1924	150,520	291,270	2.10	15.71	987,390	2,380,400	69,216	83,345	17,382	5,203	5,520
1925	134,020	355,130	1.96	14.79	1,037,104	3,618,400	82,448	84,897	18,179	5,794	5,006
1926	111,030	263,300	2.14	14.71	721,542	1,997,200	124,489	80,257	15,642	7,504	7,556
1927	138,900	267,970	1.62	14.31	924,002	2,391,800	113,357	103,782	12,064	6,725	8,584
1928	139,470	270,850	1.81	14.19	827,807	1,994,400	128,627	114,042	9,539	4,009	13,066
1929	142,620	323,720	1.82	15.25	896,707	3,069,400	139,886	147,429	16,547	4,872	10,419
1930	154,640	407,950	1.61	15.05	900,046	3,515,000	113,480	75,173	11,605	2,916	5,210
1931	158,970	296,120	1.10	11.80	897,343	1,952,800	122,215	91,572	12,154	4,621	3,221
1932	157,610	280,510	1.03	10.08	954,159	2,398,600	59,028	72,226	11,405	4,038	2,561
1933	154,430	280,150	1.14	11.39	855,049	2,162,600	46,150	75,963	11,363	1,885	2,698
1934 [4]	161,910	352,130	1.30	12.18	958,240	2,779,200					

[1] Bushels containing approximately 53 pounds.
[2] Short tons.
[3] Includes "otherwise prepared."
[4] Preliminary.

Bureau of Agricultural Economics; production figures based on returns from crop reporters and canning establishments; imports and exports compiled from Monthly Summary of Foreign Commerce of the United States, June issues. Beginning 1933–34 imports are imports for consumption. See introductory text.

TABLE 259.—*Tomatoes, commercial crop: Acreage, production, and season average price per bushel and per ton received by producers; average 1928–32, annual 1933 and 1934*

Utilization, marketing season, and State	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
For market:	*Acres*	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
Fall	4,010	6,100	4,300	256	250	334	2.56	2.17	2.19
Early (sec. 1)	10,990	12,900	12,000	1,218	1,703	2,040	2.89	1.80	2.60
Early (sec. 2)	26,600	25,400	23,400	2,036	1,705	1,566	2.52	1.56	2.39
Second early	34,220	34,000	40,700	[2] 3,498	2,666	[2] 4,120	1.47	1.52	.81
Intermediate	35,960	37,210	41,210	[2] 4,817	[2] 4,494	4,903	1.05	.85	.93
Late (sec. 1)	29,320	31,970	33,600	[2] 4,206	4,582	4,286	.98	.69	.84
Late (sec. 2)	9,560	6,850	6,700	860	733	831	1.58	1.42	2.07
Total	150,660	154,430	161,910	[2] 16,891	[2] 16,133	[2] 18,080	1.47	1.14	1.30
For manufacture:				*Short tons*	*Short tons*	*Short tons*			
New York	12,620	12,300	15,900	83,200	76,300	119,200	13.90	11.00	11.70
New Jersey	33,800	27,000	30,700	181,900	89,100	122,800	17.90	13.50	14.00
Pennsylvania	4,740	6,000	7,800	18,000	25,200	34,300	14.40	11.60	14.30
Ohio	10,670	9,800	11,900	60,400	72,500	78,500	10.60	9.30	9.30
Indiana	62,940	53,000	83,000	247,200	212,000	315,400	11.50	9.60	9.80
Illinois	5,420	5,000	10,100	19,700	15,000	11,100	12.20	10.90	12.20
Michigan	2,030	2,500	3,150	11,500	18,500	17,300	10.40	7.90	8.50
Iowa	5,500	4,500	4,300	21,600	22,500	7,700	12.00	9.20	9.60
Missouri	20,310	12,000	2,400	43,400	40,800	1,400	11.80	9.30	10.00
Delaware	12,680	13,300	18,500	43,600	26,600	51,800	14.60	17.40	17.40
Maryland	39,780	46,200	55,800	139,300	134,000	184,100	14.20	15.30	15.90
Virginia	16,180	16,500	18,900	44,800	46,200	43,500	12.60	12.10	13.50
Kentucky	6,110	4,000	5,400	16,300	8,000	8,600	11.10	9.50	10.00
Tennessee	10,500	6,600	9,000	22,600	17,200	16,200	11.20	10.00	10.30
Arkansas	21,000	15,000	2,600	47,800	34,500	1,600	11.80	10.00	10.00
Colorado	2,130	1,400	2,500	15,300	9,500	11,000	10.30	8.70	9.20
Utah	5,850	3,600	5,000	50,900	31,000	23,000	10.30	9.20	9.60
California	35,340	30,470	49,400	198,100	164,500	291,500	13.70	12.00	12.00
Other States [3]	8,230	10,980	15,780	27,400	37,900	50,600	12.13	9.76	12.51
Total	315,830	280,150	352,130	1,293,000	1,081,300	1,389,600	13.27	11.39	12.18

[1] Bushels containing approximately 53 pounds.
[2] Includes some quantities not harvested on account of market conditions: 41,000 bushels in 1928; 75,000 in 1930; 168,000 in 1931; 126,000 in 1932; 134,000 in 1933; and 1,082,000 in 1934. Price refers to harvested portion of crop.
[3] Other States includes Connecticut, Florida, Georgia, Idaho, Kansas, Louisiana, Mississippi, Nebraska, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Texas, Washington, West Virginia, and Wisconsin.

Bureau of Agricultural Economics; estimates based on returns from crop reporters and canning establishments.

TABLE 260.—*Tomatoes: Car-lot shipments, by State of origin, 1924–34*

State	Calendar year [1]										
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	954	1,024	656	951	1,112	838	514	774	463	408	562
New Jersey	2,150	1,907	2,006	1,329	678	694	842	52	17	11	5
Ohio	1,635	1,286	1,065	1,125	926	1,020	1,007	1,360	960	679	625
Indiana	1,479	1,889	1,514	1,132	799	1,631	2,217	683	279	148	28
Illinois	230	539	422	270	240	237	316	339	139	53	60
Maryland	66	313	259	586	613	775	554	373	313	267	267
Virginia	167	379	454	360	277	488	243	166	147	61	83
North Carolina	8	-------	12	21	3	2	118	158	162	83	66
South Carolina	421	568	449	187	161	348	461	348	235	162	153
Florida	9,140	7,188	4,351	9,737	8,491	8,038	6,495	5,435	6,284	6,201	7,705
Arkansas	38	104	281	240	389	300	318	217	228	62	92
Louisiana	9	10	28	8	-------	6	10	13	57	235	322
Tennessee	985	1,393	2,374	2,016	2,759	2,317	2,496	2,038	2,026	1,429	1,702
Mississippi	3,776	3,149	3,492	4,849	3,230	4,099	3,451	2,683	2,869	2,408	3,012
Texas	1,694	2,398	2,890	3,393	4,435	5,338	7,546	8,774	4,108	6,346	6,066
Colorado	77	195	27	20	59	55	138	195	67	30	53
Utah	380	1,457	272	883	899	740	342	323	198	282	335
Washington	33	86	35	95	143	215	336	252	78	100	142
California	2,789	2,961	4,440	4,620	4,475	4,241	5,458	3,403	4,307	3,727	3,647
Other States	1,399	1,408	1,041	842	706	820	716	260	270	207	211
Total	26,830	28,254	26,068	32,664	30,395	32,202	33,578	27,846	23,207	22,899	25,136

[1] Figures for Florida, Texas, and California include shipments for months preceding or following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 261.—*Tomatoes, canned: Pack [1] in the United States, 1923–31 and 1933–34* [2]

State	Season										
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1933	1934
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
New York	266	325	389	302	300	261	329	467	497	485	738
New Jersey	412	186	418	204	254	95	257	356	144	111	126
Pennsylvania	258	150	338	118	167	95	122	151	160	183	234
Ohio	174	133	179	120	189	124	153	429	304	427	522
Indiana	717	1,050	1,955	900	1,131	613	1,134	2,029	1,192	1,685	2,043
Missouri	839	871	1,836	895	605	396	622	1,078	519	[3]	[3]
Delaware	1,216	803	1,272	228	827	325	851	755	340	266	401
Maryland	5,722	3,825	6,175	1,901	3,671	1,720	4,050	3,770	1,710	2,636	3,611
Virginia [4]	963	1,116	1,138	572	1,059	466	918	818	508	977	1,005
Kentucky	59	136	275	223	253	111	167	161	161	} 488	445
Tennessee	176	386	382	280	368	160	297	518	314		
Arkansas	270	768	1,168	553	678	613	769	1,050	761	[5] 1,546	[5] 134
Colorado [6]	182	180	309	183	127	158	195	293	227	128	[7]
Utah	584	417	1,353	235	792	924	768	788	1,028	556	420
California	2,397	1,767	1,839	2,347	2,257	1,991	2,812	3,460	864	1,573	2,577
Other States	437	406	744	389	459	487	701	875	844	925	853
United States	14,672	12,519	19,770	9,455	13,137	8,539	14,145	16,998	9,573	11,986	13,109

[1] Stated in cases of 24 No. 3 cans.
[2] No comparable figures for 1932.
[3] Included in Arkansas.
[4] Includes West Virginia.
[5] Includes Missouri.
[6] Includes Washington.
[7] Included in "Other States."

Bureau of Agricultural Economics; compiled from National Canners' Association, 1923–26 and 1934; Bureau of Census, 1927–29; Foodstuffs Division, Bureau of Foreign and Domestic Commerce, 1930–33.

TABLE 262.—*Walnuts: Production and average price per ton received by producers, California and Oregon, 1924–34*

Year	California			Oregon		
	Production	Price	Farm value, basis average price	Production	Price	Farm value, basis average price
	Short tons	*Dollars*	*1,000 dollars*	*Short tons*	*Dollars*	*1,000 dollars*
1924	22,500	460	10,350	400	480	192
1925	36,000	440	15,840	500	480	240
1926	15,000	480	7,200	900	500	450
1927	51,000	330	16,830	800	360	288
1928	25,000	420	10,500	1,500	440	660
1929	39,000	320	12,480	1,250	360	450
1930	30,000	410	12,300	700	400	280
1931	29,000	233	6,757	2,000	275	550
1932	45,500	174	7,917	3,000	240	720
1933	32,000	222	7,104	1,000	280	280
1934 [1]	39,000	220	8,580	3,200	300	960

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. California data for earlier years in 1928 Yearbook, table 165.

TABLE 263.—*Watermelons, commercial crop: Acreage, production, and season average price per 1,000 melons received by producers; average 1928–32, annual 1933 and 1934*

Marketing season	Acreage			Production			Price for crop of—		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Acres	*Acres*	*Acres*	*1,000 melons*	*1,000 melons*	*1,000 melons*	*Dollars*	*Dollars*	*Dollars*
Early	42,870	30,000	31,500	[1] 15,601	8,835	9,625	189	163	140
Second early	139,220	107,150	114,400	[1] 38,543	[1] 24,057	[1] 21,906	107	77	99
Late	43,980	49,200	50,740	[1] 16,103	[1] 17,207	17,430	121	85	101
Total	226,070	186,350	196,640	[1] 70,247	[1] 50,099	[1] 48,961	128	95	108

[1] Includes some quantities not harvested on account of market conditions, 5,677,000 melons in 1930; 1,761,000 in 1931; 8,663,000 in 1932; 1,354,000 in 1933, and 122,000 melons in 1934. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based on returns from crop reporters.

TABLE 264.—*Watermelons: Car-lot shipments, United States, 1925–34*

Season	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1925	-------	605	11,767	17,814	11,524	2,390	82	2	44,184
1926	-------	443	11,424	29,923	11,509	1,861	28	-------	55,188
1927	4	1,713	15,255	20,898	6,262	1,261	67	-------	45,460
1928	-------	508	10,410	24,937	11,408	1,183	50	1	48,497
1929	36	3,498	22,047	18,287	7,582	1,007	57	-------	52,514
1930	-------	386	17,830	29,028	10,306	1,359	102	-------	59,011
1931	-------	121	16,282	23,733	10,344	1,593	58	-------	52,131
1932	2	696	11,534	13,966	5,274	655	21	-------	32,148
1933	3	1,637	7,967	13,824	5,382	919	20	-------	29,752
1934 [1]	-------	1,181	10,635	11,678	4,683	330	6	-------	28,513

[1] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 265.—*Watermelons: Car-lot shipments, by State of origin, 1925–34*[1]

State	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934[2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Indiana	646	389	45	322	299	102	305	32	16	110
Iowa	289	135	107	123	83	100	109	60	82	42
Missouri	3,293	2,843	533	851	1,039	1,405	2,641	1,770	2,351	2,629
Maryland	531	402	161	208	210	311	620	462	370	333
Virginia	375	375	294	488	487	510	935	961	1,047	926
North Carolina	991	1,301	1,144	1,252	758	1,769	2,486	1,628	1,705	1,237
South Carolina	4,232	5,395	4,031	3,822	3,494	5,018	4,206	3,617	4,397	2,349
Georgia	14,754	19,379	16,762	17,558	21,882	25,998	18,545	9,001	9,291	8,948
Florida	7,190	8,384	8,485	9,195	10,479	8,682	9,561	5,364	4,241	3,862
Alabama	1,880	1,943	1,379	769	722	1,056	978	874	542	971
Mississippi	219	208	182	197	251	206	139	35	34	286
Arkansas	411	471	321	347	439	270	312	173	135	193
Oklahoma	141	249	429	513	538	511	244	73	42	6
Texas	3,157	6,314	5,619	6,450	4,460	6,050	4,107	3,159	2,272	2,208
Washington	259	191	200	261	307	239	192	140	66	152
California	4,522	6,278	5,221	5,589	6,366	6,282	6,241	4,343	2,822	3,960
Other States	1,294	931	547	552	700	502	510	456	339	301
Total	44,184	55,188	45,460	48,497	52,514	59,011	52,131	32,148	29,752	28,513

[1] Crop-movement season extends from Apr. 1 through November of a given year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 266.—*Frozen and preserved fruits: Cold-storage holdings, United States, 1925–26 to 1934–35*

Year	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1925–26	19,168	24,259	28,702	28,356	25,564	24,640	22,624	24,054	21,592	19,124	16,368	13,370
1926–27	23,347	39,421	50,941	59,825	57,990	56,088	54,189	50,773	48,921	45,716	43,455	39,147
1927–28	41,075	57,670	62,974	65,352	62,412	61,840	56,971	54,661	52,196	43,945	40,137	36,659
1928–29	38,372	60,916	83,228	79,211	79,457	77,274	73,195	68,725	60,216	53,310	48,570	41,392
1929–30	42,285	56,539	64,863	64,993	61,348	61,752	57,860	54,942	48,085	41,723	38,554	32,535
1930–31	35,854	44,795	73,360	81,734	81,178	80,049	76,737	74,845	70,646	66,636	60,822	56,740
1931–32	66,358	88,979	110,223	107,271	103,427	99,234	96,074	92,305	88,819	82,283	78,162	72,194
1932–33	69,068	90,323	92,717	91,908	87,302	83,579	79,651	74,595	70,184	63,613	58,983	51,861
1933–34	51,922	60,029	69,275	67,631	64,877	65,088	61,713	59,926	55,434	49,164	46,180	39,993
1934–35	53,512	63,614	76,056	71,536	71,134	70,316	67,712					

Bureau of Agricultural Economics. Compiled from reports made by cold-storage establishments.

TABLE 267.—*Fruits and vegetables: Unloads of 18 commodities at 66 markets, in car lots, 1934, and total 1920–34*

Market	Apples	Cabbage	Cantaloups [1]	Celery	Grapefruit	Grapes	Lemons	Lettuce [2]	Onions	Oranges [3]	Peaches	Pears	Plums [4]	Potatoes	Strawberries	Sweetpotatoes	Tomatoes	Watermelons
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Akron	43	69	32	9	10	48	4	48	31	54	44	25	21	561	32	48	10	162
Albany	55	105	173	84	18	156	79	299	123	390	166	25	21	918	97	78	135	121
Atlanta	407	24	23	142	28	87	205	274	260	220	1	16		884	1	7	47	341
Baltimore	273	855	327	759	345	374	536	803	728	1,510	83	210	66	2,671	95	231	834	1,249
Birmingham	326	114	12	60	29	57	126	225	185	237	6	13	5	493			88	158
Boston	1,158	1,209	1,437	890	888	2,258	746	1,899	1,436	5,709	798	526	225	7,817	744	596	1,930	748
Bridgeport	47	44	45	19	52	119	29	93	32	243	62	29	17	531	20	5	47	36
Buffalo	106	382	295	258	292	256	200	602	205	1,040	206	69	43	918	314	332	182	327
Chicago	3,748	2,031	1,599	1,207	1,598	2,029	1,286	4,283	2,367	6,167	1,134	841	414	14,407	1,148	836	2,422	2,323
Cincinnati	1,534	813	368	381	456	357	519	839	634	1,641	640	112	96	3,994	554	469	560	588
Cleveland	575	603	623	410	533	478	402	1,208	715	2,149	590	162	133	3,297	417	651	165	660
Columbus	194	263	76	141	141	96	98	328	148	502	163	17	13	1,850	91	240	80	175
Dallas	481	102	16	149	60	125	177	465	203	408	15	6	16	1,094	30	55	329	15
Dayton	193	98	20	22	11	1	1	84	37	159	41		1	905	51	19	5	101
Denver	438	96	160	56	240	251	172	484	69	636	267	73	64	767	129	140	282	229
Des Moines	223	210	34	118	123	54	78	261	138	352	125	28	32	1,181	59	68	96	79
Detroit	1,105	798	602	520	682	658	499	1,535	785	2,527	886	185	154	4,619	722	615	990	812
Duluth	333	38	32	47	40	60	26	98	85	202	78	43	26	62	54	18	50	53
El Paso	93	3	9	42	23	76	52	79	24	233	23	5	4	294	20	2	79	23
Evansville	78	142	2	37	26	16	31	72	98	157	13	9	5	584	4	3	48	25
Fort Worth	259	43	6	80	35	57	70	171	134	143	3	3	4	757	28	37	172	6
Grand Rapids	13	138	38	53	117	48	75	314	49	391	107	3	3	585	99	79	27	106
Hartford	64	139	115	68	128	223	65	233	76	639	92	55	40	572	46	42	143	90
Houston	485	78	21	161	22	154	196	385	300	336	43	17	30	1,437		27	188	4
Indianapolis	417	352	57	114	171	82	126	415	214	563	91	6	11	2,250	118	104	79	226
Jacksonville	223	32	26	85	8	68	103	202	152	35	11	5	4	819			16	24
Kansas City	930	793	213	347	350	246	265	816	487	865	206	59	84	3,721	95	153	593	415
Lexington	156	106	10	26	15	11	11	62	40	64	9	2		478	7	18	39	38
Los Angeles	2,736	40	82	71	76	16	3	102	488	10	312	277	23	6,007	2	45	235	1,414
Louisville	358	330	56	76	95	52	69	234	222	395	50	13	5	886	41	27	133	115
Memphis	342	461	39	96	111	96	147	257	196	556	6	15	1	865	18	1	106	62
Milwaukee	1,177	302	161	317	254	421	148	479	294	901	398	258	114	1,721	262	83	162	331
Minneapolis	976	235	145	378	276	335	189	578	248	804	191	218	71	951	199	139	263	130
Nashville	286	184	16	54	72	48	84	169	132	383	4	6		800	1		96	50
Newark	509	534	222	194	78	1,149	13	738	167	213	415	13	17	4,083	105	31	278	181
New Haven	88	102	69	68	54	438	7	202	80	383	96	43	23	612	25	24	150	68
New Orleans	298	164	118	164	152	138	388	363	316	749	116	77	29	984			310	651
New York	5,567	3,999	5,857	3,790	6,249	8,767	2,814	6,790	4,602	19,242	3,423	3,384	1,192	18,647	1,078	391	5,926	2,140
Norfolk	117	83	26	85	37	35	35	129	155	165	1	17		1,408			50	31
Oklahoma City	386	171	9	137	78	76	100	312	83	333	23	5	15	1,057	20	24	151	11
Omaha	402	300	90	147	153	112	113	323	169	444	228	61	51	1,560	157	84	196	182
Peoria	109	106	32	26	46	121	35	167	66	286	51	32	13	1,142	24	26	9	68
Philadelphia	1,711	2,452	1,418	1,516	1,374	1,829	979	2,862	1,997	6,396	924	707	302	6,439	295	27	2,165	1,019

Pittsburgh	1,309	999	1,102	910	465	1,225	533	1,483	1,330	2,273	609	302	101	4,171	387	1,038	1,218	805
Portland, Maine	47	26	62	49	49	43	18	70	190	261	30	22	7	270	87	71	80	45
Portland, Oreg	485	27	130	90	237	253	131	348	142	834	92	208		418	82	154	168	240
Providence	76	182	117	114	116	198	54	317	222	779	166	58	31	1,174	132	65	225	199
Richmond	169	152	6	110	64	47	72	167	128	375	2	15		522			97	24
Rochester	7	117	120	89	147	164	102	314	107	636	118	17	5	380	110	103	114	186
St. Louis	1,157	1,711	479	595	511	397	531	1,462	995	1,696	344	109	83	6,270	237	165	701	1,012
St. Paul	392	97	82	110	117	200	87	265	88	477	287	160	83	577	181	58	135	122
Salt Lake City	22	22	46	3	52	26	49	145	19	317	7			46	23	33	41	138
San Antonio	275	14	1	88	5	109	131	274	128	192	28	12	9	755	2	23	114	
San Francisco	308	1	138	177	281	1,383	41	88	689	566	133	394	9	3,612		34	198	264
Seattle	206	80	137	129	273	236	177	402	262	1,044	90	76	11	1,095	93	166	193	231
Shreveport	116	34	7	21	10	24	40	76	42	89	2		1	221	3		17	
Sioux City	227	156	27	72	72	54	59	162	73	220	160	74	44	625	89	38	77	57
Spokane	63		25	16	36	21	22	92	32	98	34		2	94	12	42	11	76
Springfield, Mass	51	103	83	120	89	199	23	190	47	479	69	24	10	614	70	28	182	98
Syracuse	19	113	99	56	81	157	70	221	64	517	102	21	8	441	128	87	106	151
Tampa	159	29	31	47		65	51	168	46	2	5	16	6	1,138			17	27
Terre Haute	24	21		2	8		9		10	49	6			380	3		1	27
Toledo	148	137	36	44	95	56	74	223	50	353	110	7	9	1,157	98	95	11	91
Washington	226	354	294	343	180	147	24	636	394	697	110	86	15	1,465	28	62	292	326
Worcester	14	23	3	5	3	30			26	36	4			923	27	2	13	37
Youngstown	46	111	44	43	42	84	31	101	110	234	34	10	5	568	40	79	12	148
Total: [5]																		
1920	32,283	10,138	11,186	4,809					10,645		7,731			53,764	2,657		5,732	
1921	32,764	11,238	12,961	6,611					10,704		9,972			58,841	3,800		7,482	
1922	33,448	12,409	14,683	7,075					11,953		11,297			65,608	6,781		10,082	
1923	43,130	12,808	12,002	8,466	7,023		6,527		16,093	24,187	8,732			65,440	7,291		9,206	
1924	52,013	21,209	22,193	13,082	13,693	48,995	8,439	22,425	21,480	46,271	19,557			112,857	11,098	8,495	14,918	22,997
1925	52,414	20,277	24,947	15,167	13,856	55,458	7,474	25,536	19,936	36,847	19,055			111,063	7,720	10,721	15,477	22,735
1926	55,322	20,875	24,785	14,225	11,386	53,823	9,184	31,838	21,005	43,313	25,249			108,629	8,465	12,077	15,000	27,393
1927	50,912	23,955	29,359	19,441	18,233	62,902	12,164	38,958	30,364	55,134	22,288	13,674	4,091	138,501	12,706	16,752	28,248	27,106
1928	57,153	26,451	31,389	20,662	15,868	57,656	13,199	40,588	33,319	49,760	28,000	16,372	4,829	137,451	13,200	14,604	27,244	28,775
1929	51,415	29,466	33,311	20,607	21,739	49,895	13,349	43,069	30,980	72,218	19,264	13,281	4,171	142,707	13,047	14,960	28,642	31,242
1930	52,486	27,497	31,031	21,223	20,977	54,616	14,126	44,603	30,412	53,034	18,062	18,377	5,390	147,758	7,859	13,803	30,850	34,492
1931	50,640	28,032	31,217	18,750	26,891	37,512	13,570	40,492	26,560	73,838	26,577	13,728	4,153	140,289	10,463	12,147	25,828	32,481
1932	44,593	21,214	23,677	17,295	19,229	38,317	11,957	38,067	24,046	68,034	11,097	11,561	4,579	116,708	10,015	10,213	25,103	21,951
1933	35,996	19,695	17,641	15,521	20,377	26,582	12,089	35,901	23,535	71,332	14,318	8,340	3,566	124,003	10,585	8,937	23,174	21,399
1934	34,565	23,652	17,770	16,637	18,479	27,196	13,630	37,486	24,164	71,056	14,683	9,256	3,806	132,544	9,034	8,118	23,889	19,891

[1] Includes Casabas, Honey Dews, Honey Balls, Persian melons and mixed melons of these classes.
[2] Includes romaine.
[3] Includes tangerines and satsumas.
[4] Includes fresh prunes.
[5] Totals include: 1920–23, 12 markets; 1924–26, 36 markets; 1927–34, 66 markets.

Bureau of Agricultural Economics; compiled from daily reports made by common carriers to Bureau representatives in the various markets. Unloads as shown in car lots include boat receipts reduced to car-lot equivalents but exclude truck and l. c. l. express and freight receipts. This table not comparable with table published in Yearbooks prior to 1934.

STATISTICS OF MISCELLANEOUS CROPS

TABLE 268.—*Beans, dry, edible:*[1] *Acreage, production, value, and foreign trade, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Weighted average price per 100 pounds received by producers [2]	Farm value, basis weighted average price [3]	Wholesale price per 100 pounds at Chicago [4]	Foreign trade, year beginning July	
							Imports [5]	Domestic exports [5]
	1,000 acres	*Pounds*	*1,000 bags* [6]	*Dollars*	*1,000 dollars*	*Dollars*	*1,000 bushels*	*1,000 bushels*
1919	*1,162*	*727.0*	*8,447*					
1919	1,077	752.0	8,099	6.81	47,954	7.92	3,806	1,993
1920	913	661.8	6,042	4.31	24,710	6.76	824	1,216
1921	861	706.7	6,085	4.76	27,707	4.61	520	1,100
1922	1,129	699.8	7,901	5.82	42,984	7.46	2,623	672
1923	1,322	725.2	9,587	5.37	48,734	7.04	886	695
1924	1,582	587.7	9,298	5.61	48,792	5.46	1,421	549
1925	1,614	728.6	11,760	5.00	53,774	6.16	1,271	576
1926	1,611	646.2	10,410	5.04	46,242	4.95	1,051	529
1927	1,450	629.0	9,120	5.52	47,315	5.53	2,465	427
1928	1,535	642.7	9,866	7.27	68,622	9.00	1,505	316
1929	[7] *1,746*	*699.4*	*12,212*					
1929	1,836	666.7	12,240	6.77	79,118	9.76	2,534	296
1930	2,110	658.8	13,900	4.19	55,420	6.63	1,346	271
1931	1,913	671.4	12,843	2.14	25,825	4.55	222	158
1932	1,408	741.5	10,440	2.01	20,025	2.46	157	140
1933	1,692	729.2	12,338	2.79	32,465	2.97	[8] 145	116
1934 [9]	1,378	737.2	10,159	3.65	34,710	3.69		

[1] Table includes, besides the ordinary edible beans and limas, the Blackeye of California which is identical with the blackeyed pea of the South. Soybeans not included.

[2] Price of cleaned beans.

[3] Farm value of dry, edible beans equals the price of cleaned beans applied to the production of cleaned beans rather than total production.

[4] Compiled from Chicago Daily Trade Bulletin, pea beans.

[5] Imports and exports compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–34; and official records of the Bureau of Foreign and Domestic Commerce.

[6] Bags of 100 pounds. Computed from bushels of 60 pounds.

[7] Acreage grown alone.

[8] Imports for consumption.

[9] Preliminary.

Bureau of Agricultural Economics.

Italic figures are census returns; census figures include all States; other figures, estimates of Crop Reporting Board, principal producing States only, revised, 1919-28. See introductory text.

Estimates of acreage, yield, production, price to producers, and farm value previous to 1919, as published in Yearbook for 1933 and earlier years, are not comparable with the revised series in this table.

TABLE 269.—*Beans, dry, edible:*[1] *Acreage, yield, production, and weighted average price per bag of 100 pounds received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [2]	Average, 1922–31	1933	1934 [2]	Average, 1927–31	1933	1934 [2]	1933	1934 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 bags* [3]	*1,000 bags* [3]	*1,000 bags* [3]	*Dollars*	*Dollars*
Maine	8	9	8	[4] 848	810	780	68	73	62	5.20	5.30
Vermont	3	3	3	[4] 641	540	600	21	16	18	4.95	5.15
New York	100	117	110	773	720	810	797	842	891	3.10	3.40
Michigan	546	510	515	621	690	630	2,803	3,519	3,244	2.25	2.85
Wisconsin	7	5	6	470	390	390	28	20	23	2.90	3.30
Minnesota	6	7	7	579	420	300	25	29	21	3.55	3.95
Nebraska	9	16	12	546	720	570	51	115	68	2.95	4.05
Kansas	[4] 12	13	[5]		360		[4] 51	47		2.95	
Montana	38	34	29	876	900	600	380	306	174	2.35	3.25
Idaho	138	121	122	1,080	1,380	1,100	1,565	1,670	1,342	2.20	3.25
Wyoming	29	31	26	825	1,080	960	293	335	250	2.55	3.70
Colorado	374	365	186	343	330	150	1,384	1,204	279	2.90	5.40
New Mexico	163	176	44	371	340	150	686	598	66	2.90	5.55
Arizona	7	9	10	425	420	400	33	38	40	3.50	4.50
Oregon	[4] 3	1	1		600	600	[4] 10	6	6	3.75	4.05
California	328	275	299	1,002	1,280	1,229	3,412	3,520	3,675	3.45	4.35
United States	1,769	1,692	1,378	665.6	729.2	737.2	11,594	12,338	10,159	2.79	3.65

[1] Table includes, besides the ordinary edible beans and limas, the Blackeye of California which is identical with the blackeyed pea of the South. Soybeans not included.
[2] Preliminary.
[3] Bags of 100 pounds.
[4] Short-time average.
[5] Less than 500 acres.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 270.—*Beans, dry, edible:*[1] *Production by classes, 100-pound bags, United States, 1924–34*

Class [2]	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [3]
	1,000 bags	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*
Pea	4,121	4,967	3,646	2,325	2,723	3,339	2,834	3,872	4,827	3,805	3,488
Great Northern	540	739	856	1,174	1,253	1,764	2,114	2,030	1,073	1,646	1,140
Small White [4]	77	200	180	280	424	415	489	429	226	417	402
Large White [4]	40	25	15	15	23	21	24	15	4	3	1
Large and Medium White	87	117	27								
Marrow	176	222	89	86	112	135	166	212	92	102	103
White Kidney	78	57	89	52	31	42	39	117	53	64	105
Red Kidney [5]	881	886	672	428	575	417	345	533	362	440	422
Small Red	73	163	113	220	282	393	520	488	258	329	294
Cranberry [4]	70	60	73	110	106	107	120	147	71	97	137
Pink	284	643	600	559	578	620	627	433	515	597	515
Yelloweye	172	118	128	114	104	104	81	144	76	93	140
Pinto	1,329	1,568	1,354	1,772	1,542	2,327	3,174	1,567	899	1,902	502
Bayo [4]	20	15	21	25	12	12	16	20	3	8	15
Blackeye [4]	277	450	450	300	428	514	852	459	275	587	525
Lima [4]	480	800	1,250	1,010	890	987	1,102	1,064	872	943	1,003
Baby lima [4]	225	300	580	310	401	486	696	663	322	630	700
Other [6]	368	430	267	340	382	557	701	550	512	675	667
Total	9,298	11,760	10,410	9,120	9,866	12,240	13,900	12,843	10,440	12,338	10,159

[1] Table includes, besides the ordinary edible beans and limas, the Blackeye of California, which is identical with the blackeyed pea of the South. Soybeans not included.
[2] The bean classification figures in table 263 of 1932 Yearbook, and similar data in preceding issues, were on a different basis from those in table 258 of 1933 Yearbook, table 269 in 1934 Yearbook, and those in the present table. The present grouping has been made upon a classification basis consistent with the United States standards for beans.
[3] Preliminary.
[4] Special California classes.
[5] Including production of dark red beans in Michigan: 69,000 bags in 1930, 76,000 in 1931, 91,000 in 1932, 70,000 in 1933, and 57,000 in 1934.
[6] Including, in some Western States, seed beans of garden varieties.

Bureau of Agricultural Economics; based on reports by growers on proportion of total production made up of each variety, supplemented by investigations of field statisticians. Revised, 1919–28. See introductory text.

TABLE 271.—*Beans, dry, edible: Average price per 100 pounds, 1925–26 to 1934–35*

PEA, NEW YORK [1]

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average [2]
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	5.55	5.80	5.99	5.90	5.75	5.57	5.26	5.08	5.11	5.13	5.06	5.07	5.44
1926–27	5.10	6.03	6.18	6.02	5.71	5.50	5.38	5.30	5.70	6.39	6.54	6.71	5.88
1927–28	6.65	6.60	6.39	6.40	6.78	7.96	9.41	10.23	10.29	10.48	10.68	10.75	8.55
1928–29	10.75	8.90	9.38	10.00	10.42	11.29	11.05	10.55	10.68	10.42	9.56	10.16	10.26
1929–30	10.19	9.50	8.29	7.91	7.97	7.81	7.26	6.83	7.12	7.08	6.88	7.58	7.87
1930–31	8.31	6.58	5.73	5.54	5.52	5.33	5.11	4.97	5.01	4.74	4.56	4.71	5.51
1931–32	4.21	3.61	3.66	3.01	2.82	2.75	2.65	2.56	2.65	2.59	2.52	2.82	2.99
1932–33	2.67	2.25	2.01	1.88	1.84	1.82	2.10	2.67	3.15	2.89	3.68	4.00	2.58
1933–34	3.94	3.48	3.29	3.20	3.30	3.38	3.26	3.04	3.01	3.15	3.16	3.53	3.31
1934–35	4.31	4.08	3.68	3.39	------	------	------	------	------	------	------	------	------

GREAT NORTHERN, CHICAGO [3]

1926–27	------	------	------	------	------	------	5.91	5.85	5.85	------	8.71	9.38	------
1927–28	9.32	------	6.30	6.13	6.46	7.14	8.44	8.40	9.57	9.62	9.20	9.00	8.14
1928–29	8.38	8.00	8.44	8.86	9.47	9.96	9.95	9.50	9.50	9.54	9.90	9.90	9.28
1929–30	9.97	9.88	8.21	7.37	7.25	6.75	6.25	6.25	6.20	6.06	6.25	6.31	7.23
1930–31	6.75	6.25	5.46	5.20	5.06	4.82	4.50	4.46	4.37	4.60	4.44	4.54	5.04
1931–32	4.81	3.49	3.36	3.44	3.50	3.38	3.38	2.85	2.45	2.62	2.81	2.82	3.24
1932–33	2.91	2.75	2.52	2.58	2.47	2.48	2.70	3.04	3.83	3.68	3.60	------	2.96
1933–34	4.42	4.14	3.94	3.69	3.75	3.75	3.86	3.88	3.71	3.49	3.62	4.23	3.87
1934–35	4.52	5.08	4.97	4.82	------	------	------	------	------	------	------	------	------

CALIFORNIA LIMA, NEW YORK [1]

1925–26	15.92	14.11	13.24	11.88	11.83	12.06	11.20	10.13	9.15	8.88	8.76	8.55	11.31
1926–27	8.94	8.44	7.68	7.01	7.14	6.94	6.97	6.97	6.86	6.74	6.68	6.67	7.25
1927–28	6.96	6.97	6.85	6.83	7.00	7.87	8.33	9.06	9.69	9.75	9.90	10.17	8.28
1928–29	9.90	9.76	10.56	12.01	12.61	13.42	13.50	13.50	14.40	15.25	15.90	16.17	13.08
1929–30	16.76	14.39	13.27	12.95	12.28	12.07	12.71	12.71	12.67	12.45	12.01	11.95	13.02
1930–31	12.05	9.90	8.74	7.37	7.58	7.94	7.56	7.50	7.40	6.55	5.98	6.29	7.90
1931–32	6.08	5.78	5.88	5.50	5.10	4.56	4.26	4.26	4.28	4.40	4.49	4.96	4.96
1932–33	5.41	5.41	4.86	4.63	4.55	4.52	4.55	5.01	6.29	6.41	6.64	7.00	5.44
1933–34	6.80	6.31	6.07	5.92	5.91	6.16	6.50	6.48	6.26	6.35	6.37	6.41	6.30
1934–35	6.93	6.84	6.65	6.50	------	------	------	------	------	------	------	------	------

CALIFORNIA PINK [4]

1925–26	7.25	5.76	5.16	5.23	5.73	5.46	5.38	5.20	5.14	5.52	5.36	5.02	5.52
1926–27	4.76	5.02	4.90	4.90	4.92	4.73	4.76	4.89	5.18	5.60	5.82	5.62	5.09
1927–28	5.23	4.71	4.70	4.68	4.92	5.74	6.14	6.23	6.34	6.25	6.00	5.48	5.54
1928–29	5.11	5.48	6.26	6.54	7.37	7.14	7.10	6.86	6.93	6.97	6.86	7.45	6.67
1929–30	6.25	6.21	6.02	5.92	5.61	5.56	5.42	5.40	5.61	6.25	6.38	6.38	5.92
1930–31	5.68	4.39	3.90	3.97	3.96	3.90	3.81	3.62	3.41	3.29	3.12	3.04	3.84
1931–32	2.79	2.94	3.69	3.90	3.55	3.12	2.77	2.70	2.68	2.68	2.62	2.93	3.03
1932–33	3.28	3.05	2.74	2.71	2.52	2.31	2.40	2.92	3.69	3.63	3.76	4.11	3.09
1933–34	3.76	3.37	3.36	3.02	3.00	3.26	3.17	2.92	2.79	2.88	3.21	3.55	3.19
1934–35	4.79	5.30	5.44	5.41	------	------	------	------	------	------	------	------	------

[1] Prices represent prevailing values of the commodity and grade specified, as indicated by sales from receivers to wholesale distributors.
[2] Where prices are missing, average is for months shown.
[3] Quotations are for wholesale prices to the local trade.
[4] F. o. b. rail, California, straight cars.

Bureau of Agricultural Economics; compiled from the Chicago Daily Trade Bulletin; New York Producers Price Current, daily; and California Fruit News, weekly.

TABLE 272.—*Beans, dry, edible: Car-lot shipments, by State of origin, 1924–25 to 1933–34*

State	Crop-movement season [1]									
	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*1,000 bags*	*1,000 bags*
New York	1,900	1,158	916	614	889	1,056	961	1,922	689	598
Michigan	7,848	10,506	8,699	4,989	6,383	5,616	5,046	6,635	4,185	2,741
Montana	124	288	280	386	566	733	647	402	112	118
Idaho	1,336	1,898	1,437	2,074	1,973	2,516	2,671	2,412	1,024	1,211
Wyoming	31	82	130	252	347	577	785	499	133	183
Colorado	1,316	2,927	1,866	1,711	1,732	2,347	4,312	1,883	491	788
New Mexico	388	170	412	608	555	1,750	624	901	340	297
California	1,847	2,558	3,433	3,251	2,961	3,588	2,850	2,253	[3] 869	1,413
Other States	134	138	114	55	122	239	357	218	62	81
Total	14,924	19,725	17,287	13,940	15,528	18,422	18,253	17,125	7,905	7,430

[1] Crop-movement season extends from September of one year through August of the following year.
[2] Preliminary.
[3] In addition to rail shipments, 190,267 bags were shipped by river boats or barges.

Bureau of Agricultural Economics; compiled from monthly reports received by the Bureau from local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included. Beginning 1932–33, shipments are reported in bags of 100 pounds each and the data include all shipments originating at shipping points whether in car lots or less than car lots. The figures therefore are not comparable with those in other years, which are for car-lot shipments only.

TABLE 273.—*Beans, dry, edible:*[1] *Production in specified countries, bags of 100 pounds, average 1921–22 to 1925–26, annual 1930–31 to 1934–35*

Country	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34	1934–35 [2]
	1,000 bags	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*
Canada	736	863	782	685	534	488
United States	8,926	13,900	12,843	10,440	12,338	10,159
Mexico	2,562	1,820	2,997	2,907	4,097	2,621
England and Wales	3,787	3,118	2,690	2,647	2,633	2,600
Scotland	75	76	59	57	61	53
Netherlands	327	429	397	342	338	
France	2,410	3,119	3,284	3,047	2,299	2,107
Italy	2,345	3,490	2,692	3,970	3,411	4,158
Spain	3,398	3,631	3,427	3,333	3,427	
Germany		255	240	239	237	184
Czechoslovakia	273	214	198	204	145	353
Austria	162	276	247	208	232	328
Hungary	810	1,017	1,335	[3] 1,909	[3] 1,780	[3] 1,631
Yugoslavia	[4] 1,748	3,352	2,205	[3] 3,306	[3] 2,582	[3] 2,690
Rumania	4,681	4,476	7,284	7,142	7,290	[3] 6,173
Bulgaria	1,055	1,364	1,787	[3] 1,658	[3] 1,817	[3] 1,675
Poland	684	912	1,010	810	764	
Greece	[4] 175	169	258	311	327	
Japan [5]	1,513	2,919	1,519	1,078	2,444	1,614
Chosen	[6] 116	103	70	79		
Brazil	[6] 12,519	14,868				
Chile	969	1,408	1,404	2,166	[5] 1,836	
Madagascar	[4] 392	247	337	351		
Total countries reporting, all periods	31,083	40,004	39,922	39,258	41,663	36,650
Total, all countries		62,026				

[1] Excluding soy, mung, adzuki, broad, and horse beans and similar classes not commonly used as edible beans in the United States.
[2] Preliminary.
[3] Unofficial estimate.
[4] 4-year average.
[5] Production in Hokkaido Province, where most of the dry edible bean varieties are grown.
[6] 3-year average.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture except as otherwise stated.

Figures are for the harvesting seasons 1921 to 1934 in the Northern Hemisphere and 1921–22 to 1934–35 in the Southern Hemisphere.

TABLE 274.—*Soybeans: Acreage, yield, production, and weighted average price per bushel received by producers, by States, average 1927–31, and annual 1933 and 1934*

State	Soybeans gathered						Soybeans produced [2]							
	Acreage [1]		Yield per acre		Total quantity gathered		Acreage			Production			Price of beans gathered for crop of—	
	1933	1934 [3]	1933	1934 [3]	1933	1934 [3]	Average, 1927–31	1933	1934 [3]	Average, 1927–31	1933	1934 [3]	1933	1934 [3]
	1,000 acres	*1,000 acres*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Dollars*	*Dollars*
Ohio	21	24	16.0	17.0	336	408	41	21	24	618	336	408	1.03	1.10
Indiana	116	150	15.0	16.0	1,740	2,400	127	116	150	1,919	1,740	2,400	.86	1.20
Illinois	290	501	15.0	19.0	4,350	9,519	263	290	501	4,350	4,350	9,519	.81	1.10
Michigan	2	2	12.0	10.5	24	21	2	2	2	21	24	21	.89	.90
Wisconsin	6	5	11.5	12.0	69	60	2	6	5	23	69	60	1.17	1.50
Iowa	82	148	17.0	13.5	1,394	2,000	42	82	148	643	1,394	2,000	1.03	1.25
Missouri	132	117	11.5	7.5	1,518	878	96	132	117	1,077	1,518	878	1.19	1.50
Kansas	11	5	8.5	5.0	94	25	8	11	5	72	94	25	1.12	1.50
Delaware	27	26	14.0	17.0	378	442	21	27	26	246	378	442	1.18	1.20
Maryland	6	6	13.0	15.0	78	90	6	6	6	71	78	90	1.12	1.25
Virginia	16	16	12.5	13.5	200	216	33	26	24	377	325	324	1.24	1.25
West Virginia	3	2	12.0	13.0	36	26	3	3	2	36	36	26	1.78	2.25
North Carolina	76	84	11.0	12.0	836	1,008	215	200	200	3,104	2,200	2,400	1.27	1.60
South Carolina	6	5	10.0	9.0	60	45	30	25	14	339	250	126	1.44	1.90
Georgia	6	6	9.0	10.5	54	63	16	10	9	165	90	94	1.83	2.30
Kentucky	6	5	12.5	13.0	75	65	20	19	18	257	238	234	1.25	1.50
Tennessee	17	14	7.5	7.5	128	105	65	17	14	727	128	105	1.33	1.50
Alabama	4	5	12.0	13.0	48	65	14	7	8	178	84	104	1.63	1.80
Mississippi	7	10	14.0	12.5	98	125	34	23	29	477	322	362	1.60	2.30
Arkansas	4	6	14.5	12.0	58	72	17	11	17	240	160	204	1.49	2.10
Louisiana	6	12	10.5	10.0	63	120	76	107	124	812	1,124	1,240	1.85	2.10
Oklahoma	3	3	11.0	3.0	33	9	10	4	4	94	44	12	1.35	1.90
United States	847	1,152	13.8	15.4	11,670	17,762	1,140	1,145	1,447	15,845	14,982	21,074	1.11	1.32

[1] Solid equivalent of acres from which soybeans were gathered.
[2] Excluding soybeans cut for hay. Soybeans planted in corn and soybeans grazed or hogged off are included for the Southern States where they are important, but omitted for Northern States where relatively unimportant.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 275.—*Soybeans: Production in specified countries, 1924–25 to 1934–35*

Crop year	United States	Manchuria [1]	Chosen	Japan	Netherlands Indies
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*
1924–25	5,190	92,667	18,723	16,596	3,536
1925–26	5,131	116,667	23,609	18,473	3,933
1926–27	6,063	135,000	22,276	12,512	3,672
1927–28	7,596	163,319	24,300	16,704	3,971
1928–29	8,819	177,804	19,510	15,239	4,303
1929–30	8,670	178,389	20,434	13,592	3,917
1930–31	12,217	193,564	22,989	15,531	4,693
1931–32	15,463	192,058	21,155	12,719	4,722
1932–33	13,121	156,817	22,578	12,349	5,471
1933–34	11,670	169,056	23,324	----------	6,542
1934–35 [2]	17,762	132,259	21,961	----------	----------

[1] Manchuria produces about 97 percent of the soybean production of China. Production figures for China are not available.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from official sources.

TABLE 276.—*Soybeans: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	2.27	2.18	2.17	2.38	2.33	2.39	2.27	2.37	2.67	2.71	2.31	2.27	2.35
1926–27	1.97	1.85	1.83	1.90	2.03	1.98	2.07	2.15	2.20	2.14	2.06	1.91	2.00
1927–28	1.86	1.70	1.61	1.70	1.69	1.85	1.93	2.06	2.13	2.12	2.01	1.89	1.84
1928–29	1.72	1.69	1.70	1.82	1.93	2.13	2.19	2.30	2.41	2.46	2.15	1.87	1.92
1929–30	1.79	1.70	1.73	1.85	1.91	2.00	2.07	2.11	2.16	1.96	1.90	1.80	1.86
1930–31	1.64	1.48	1.44	1.46	1.40	1.42	1.38	1.39	1.29	1.12	.94	.82	1.42
1931–32	.58	.52	.61	.62	.59	.66	.65	.64	.61	.58	.58	.57	.61
1932–33	.55	.45	.44	.45	.45	.48	.58	.86	.98	1.04	.94	.85	.64
1933–34	.68	.69	.73	.81	1.01	1.16	1.26	1.25	1.45	1.54	1.25	1.05	1.11
1934–35	.95	.89	1.11	------	------	------	------	------	------	------	------	------	[1] 1.32

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; averages for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1930 Yearbook, table 298. Only monthly prices are comparable.

TABLE 277.—*Soybeans for seed: Average wholesale selling price per bushel at Baltimore and St. Louis, 1925–34*

Year	Baltimore						St. Louis					
	Jan.	Feb.	Mar.	Apr.	May	Average	Jan.	Feb.	Mar.	Apr.	May	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	2.85	2.95	3.15	2.95	2.35	2.85	2.40	2.40	2.40	2.25	2.10	2.31
1926	2.00	2.05	2.10	2.15	2.75	2.21	2.15	2.15	2.30	2.55	2.90	2.41
1927	1.80	1.80	1.80	1.80	1.85	1.81	2.70	2.70	2.40	2.50	2.70	2.60
1928	1.95	1.90	1.95	1.95	2.15	1.98	1.80	1.80	1.85	2.00	2.25	1.94
1929	2.25	2.35	2.40	2.40	2.70	2.42	2.55	2.55	2.60	2.75	2.85	2.66
1930	2.10	2.10	2.10	2.25	2.65	2.24	2.15	2.25	2.25	2.25	2.25	2.23
1931	2.25	2.25	2.25	2.25	2.25	2.25	1.80	1.80	1.80	1.80	1.95	1.83
1932	.90	.90	.90	.90	.85	.89	1.05	1.05	.90	.90	.80	.94
1933	.80	.80	.80	1.00	1.45	.97	.80	.80	.90	1.05	1.30	.97
1934	1.75	1.75	1.85	1.80	1.70	1.75	1.60	2.00	2.00	2.00	1.75	1.85

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the markets. These prices are the average wholesale selling prices for high-quality seed. Data for earlier years in 1928 Yearbook, table 242.

TABLE 278.—*Soybean oil: Soybeans crushed and crude oil produced, 1924–25 to 1933–34*

Year	Soybeans crushed [1]					Oil produced				
	Oct.–Dec.	Jan.–Mar.	Apr.–June	July–Sept.	Total	Oct.–Dec.	Jan.–Mar.	Apr.–June	July–Sept.	Total
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1924–25	3,550	7,478	3,038	4,336	18,402	77	870	360	562	2,269
1925–26	5,486	7,746	7,450	358	21,040	728	990	874	46	2,638
1926–27	5,132	6,804	6,032	2,104	20,072	735	862	776	286	2,659
1927–28	8,788	10,278	8,792	5,654	33,512	1,164	1,289	1,132	789	4,374
1928–29	11,480	21,190	9,666	10,560	52,896	1,506	3,046	1,277	1,456	7,285
1929–30	39,658	25,288	20,716	14,324	99,986	5,231	3,343	2,905	1,945	13,424
1930–31	43,546	64,824	77,346	58,432	244,148	6,194	9,107	10,996	8,391	34,688
1931–32	77,606	102,332	65,488	38,072	283,498	10,655	14,682	9,257	5,351	39,945
1932–33	72,682	63,004	48,680	23,810	208,176	10,155	8,667	6,834	3,422	29,078
1933–34	53,752	56,002	46,064	27,414	183,232	7,610	7,989	6,704	3,894	26,197

[1] The output of meal is usually about 80 percent of the soybeans crushed.

Bureau of Agricultural Economics; compiled from reports of the Census, Animal and Vegetable Fats and Oils.

TABLE 279.—*Soybeans and soybean oil: International trade, average 1925–29, annual 1931–33*

SOYBEANS

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
China [2]	3,731,214	0	5,074,744	0	2,302,596	0	[3] 12,744	0
Total	3,731,214	0	5,074,744	0	2,302,596	0	12,744	0
PRINCIPAL IMPORTING COUNTRIES								
Germany	0	1,390,622	0	2,236,727	0	2,616,842	0	2,581,366
Japan	5,574	1,015,825	4,483	1,220,267	3,230	1,040,083	1,409	965,854
Denmark	0	394,965	0	523,993	0	503,955	0	516,224
United Kingdom	0	305,643	0	247,072	0	349,668	0	352,657
Sweden	0	166,799	0	68,753	0	19,856	0	126,947
Italy	[4] 42	97,395	0	88,820	0	47,409	0	13,916
Netherlands	1,192	58,510	1,182	70,952	688	91,897	177	86,518
United States [5]	0	4,064	[6] 0	3,544	[6] 0	2,551	[6] 0	470
Total	6,808	3,433,823	5,665	4,460,128	3,918	4,682,261	1,586	4,643,952

SOYBEAN OIL

PRINCIPAL EXPORTING COUNTRIES								
China	244,894	0	196,119	0	62,205	0	[3] 0	0
Germany	45,828	30,004	55,137	20,441	68,424	8,463	70,682	2,743
Denmark	36,742	3,670	40,937	1,764	49,352	4,977	41,285	4,058
Japan	14,393	323	16,009	[7] 568	14,115	[7] 548	2,965	0
Sweden	12,917	10,182	2,312	24,302	1,686	28,645	1,655	15,739
Total	354,774	44,179	310,514	47,075	195,782	42,633	116,587	22,540
PRINCIPAL IMPORTING COUNTRIES								
Netherlands	40,024	109,176	24,140	62,175	31,808	56,945	26,130	37,559
United Kingdom	49,942	75,917	32,294	62,265	5,909	61,130	1,380	44,365
United States	4,528	19,545	4,551	4,916	2,647	405	1,569	3,669
France	159	17,401	0	7,337	345	8,672	104	8,506
Morocco	0	[8] 9,855	0	9,911	0	16,073	0	7,770
Algeria	19	6,394	[7] 0	2	0	1,131	0	96
Austria	17	6,011	1	6,062	1	6,566	0	20,874
Canada [9]	0	989	0	1,900	0	1,578	0	2,412
Total	94,689	245,288	60,986	154,568	40,710	152,500	29,183	125,251

[1] Preliminary.
[2] These figures are for yellow soybeans, which variety constitutes fully 98 percent of the soybean exports, according to Agricultural Commissioner Paul O. Nyhus.
[3] Manchuria not included after June 1932.
[4] 3-year average.
[5] Imports for consumption.
[6] Domestic exports of soybeans are not separately reported in Foreign Commerce and Navigation of the United States; if any, included with exports of "oilseeds." Soybeans inspected for export began in October 1931, there being 7,978,800 pounds exported from October to December; inspected for export calendar year 1932, 253,353,480 pounds and for 1933, 15,331,740 pounds.
[7] International Yearbook of Agricultural Statistics.
[8] 4-year average.
[9] Soybeans included with cake and meal.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 280.—*Soybean oil, crude: Average price per pound, in barrels, New York, by months, 1910–11 to 1934–35*

Year	Imported												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1910–11	------	------	------	7.31	7.81	7.56	6.97	6.88	6.33	6.38	6.34	6.62	[1] 6.91
1911–12	7.62	7.31	6.90	6.75	6.55	6.76	6.69	6.81	6.51	6.57	6.56	6.56	6.80
1912–13	6.62	6.38	6.00	5.91	6.04	5.94	5.94	6.00	6.00	6.27	6.50	6.50	6.18
1913–14	6.48	6.44	6.44	6.44	6.45	6.38	6.38	6.38	6.25	6.25	6.80	6.84	6.46
1914–15	6.75	5.84	5.34	5.70	6.23	6.41	6.42	6.58	6.34	6.16	5.94	5.91	6.14
1915–16	6.61	7.25	7.60	8.22	8.64	9.25	9.46	9.11	8.25	7.78	7.78	8.48	8.20
1916–17	10.06	11.11	11.90	12.06	12.56	13.35	13.88	14.72	14.90	13.60	13.88	14.72	13.06
1917–18	15.70	16.75	17.55	18.17	18.70	19.18	19.62	19.25	18.22	18.28	18.25	18.31	18.16
1918–19	18.38	17.70	17.00	15.27	13.06	12.95	15.41	17.00	18.84	20.16	19.12	17.25	16.84
1919–20	17.47	17.52	17.69	19.02	18.28	18.69	17.94	17.33	17.00	15.55	13.81	13.60	16.90
1920–21	12.32	11.22	9.00	8.55	6.56	6.25	7.00	7.62	7.86	8.11	8.72	8.28	8.46
1921–22	9.22	8.88	9.15	8.88	9.12	10.81	11.38	nom	nom	nom	nom	nom	[1] 9.63
1922–23	10.00	10.33	10.69	11.34	11.69	12.35	13.00	12.91	12.62	12.00	11.62	11.28	11.65
1923–24	10.84	11.00	11.38	12.00	12.50	12.25	11.75	12.16	12.03	12.44	12.60	12.69	11.97
1924–25	12.69	13.12	13.44	13.32	13.25	13.31	13.38	13.38	13.38	13.38	13.38	13.38	13.28
1925–26	13.38	13.38	13.38	13.38	13.38	13.38	13.38	13.38	13.75	14.00	14.00	14.00	13.57
1926–27	13.60	12.50	12.03	12.02	12.12	12.12	12.19	12.38	12.19	12.12	12.12	12.12	12.29
1927–28	12.12	12.12	12.12	12.12	12.12	12.12	12.12	12.19	12.38	12.38	12.38	12.38	12.21
1928–29	12.38	12.38	12.38	12.38	12.38	12.38	11.98n	11.75	11.75n	11.12	11.12	11.32	11.94
1929–30	12.62	12.62	12.25	12.25	12.03	11.38	11.38	11.25	10.98	10.88	10.88	10.82	11.61
1930–31	10.38	10.25	10.12	9.44	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	9.18
1931–32	8.75	8.75	8.75	8.25	8.25	8.25	8.25	------	------	------	------	------	[1] 8.46
	Domestic [2]												
1929–30	13.00	13.00	12.50	11.75	11.50	10.72	10.40	10.64	10.80	10.72	10.38	10.18	11.30
1930–31	9.30	8.50	8.30	7.38	7.50	7.50	7.45	7.30	7.30	7.30	7.20	6.55	7.63
1931–32	5.65	5.55	5.18	4.81	4.45	4.45	4.45	4.40	4.15	4.12	4.12	4.12	4.62
1932–33	4.40	4.25	4.20	4.35	4.50	4.72	4.90	6.30	7.05	8.20	9.05	8.20	5.84
1933–34	7.60	7.30	6.98	6.80	7.05	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.24
1934–35	7.30	7.55	8.70	------	------	------	------	------	------	------	------	------	------

[1] Average for months quoted.
[2] Domestic oil not quoted prior to October 1929, as production in this country had not reached commercial proportions.

Bureau of Agricultural Economics. Compiled from the Oil, Paint, and Drug Reporter. Prices are average of quotations on Saturdays during the month.
Through August 1911, quotations are for English, spot; September 1911–April 1916, English or Manchuria; May 1916–January 1919, Manchuria only; February 1919, and subsequently, origin not indicated. Quotations for imported do not appear after April 1932 as importations had practically ceased as a result of a prohibitive tariff.

TABLE 281.—*Cowpeas: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	3.24	3.12	2.93	2.98	2.87	3.03	3.21	3.37	3.50	3.43	3.47	3.47	3.25
1926–27	3.22	2.79	2.34	2.05	1.95	1.94	1.94	1.89	1.93	1.90	1.90	1.93	1.99
1927–28	1.84	1.80	1.70	1.72	1.65	1.71	1.74	1.76	1.86	2.00	2.09	2.09	1.90
1928–29	2.01	1.82	1.83	1.83	2.02	2.15	2.45	2.63	2.88	3.05	3.24	3.19	2.63
1929–30	2.99	2.49	2.30	2.22	2.28	2.40	2.59	2.73	2.85	2.93	3.00	2.93	2.64
1930–31	2.66	2.41	2.20	2.05	1.86	1.80	1.75	1.82	1.87	1.93	1.96	1.89	1.94
1931–32	1.63	1.27	.98	.93	.93	.92	.86	.88	.82	.76	.72	.67	.88
1932–33	.70	.67	.70	.63	.60	.60	.60	.62	.69	.89	1.02	1.21	.83
1933–34	1.30	1.06	.94	.87	.92	1.03	1.26	1.45	1.61	1.63	1.60	1.57	1.34
1934–35	1.42	1.32	1.26	1.25	1.30	------	------	------	------	------	------	------	[1] 1.66

[1] Preliminary.

Bureau of Agricultural Economics; based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 245. Only monthly prices are comparable.

TABLE 282.—*Cowpeas: Acreage, yield, production, and weighted average price per bushel received by producers, by States, average 1927–31, and annual 1933 and 1934*

State	Cowpeas gathered						Cowpeas produced [2]							
	Acreage [1]		Yield per acre		Total quantity gathered		Acreage			Production			Price of peas gathered for crop of—	
	1933	1934 [3]	1933	1934 [3]	1933	1934 [3]	Average, 1927–31	1933	1934 [3]	Average, 1927–31	1933	1934 [3]	1933	1934 [3]
	1,000 acres	*1,000 acres*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Dollars*	*Dollars*
Ind	7	14	8.0	9.0	56	126	15	7	14	125	56	126	1.06	1.30
Ill	56	60	7.0	8.0	392	480	50	56	60	396	392	480	1.13	1.35
Mo	25	30	10.0	8.5	250	255	25	25	30	245	250	255	1.36	1.85
Kans	1	1	5.8	4.0	6	4	2	1	1	14	6	4	1.75	1.75
Del	2	2	12.0	14.0	24	28	3	2	2	31	24	28	1.35	1.45
Md	2	1	10.0	10.0	20	10	1	2	1	14	20	10	1.23	1.45
Va	8	9	8.5	9.5	68	86	18	19	20	157	162	190	1.33	1.65
N. C	32	38	10.0	9.0	320	342	92	89	104	1,011	890	936	1.38	1.75
S. C	96	99	8.0	7.5	768	742	182	150	151	1,464	1,200	1,132	1.15	1.45
Ga	91	65	9.4	9.5	855	618	141	161	112	1,316	1,513	1,064	1.32	1.65
Fla	8	7	7.0	11.0	56	77	20	21	19	204	147	209	1.63	1.80
Ky	8	7	9.0	11.5	72	80	23	19	19	264	171	218	1.21	1.40
Tenn	30	26	5.5	5.5	165	143	54	30	26	495	165	143	1.21	1.45
Ala	76	78	10.0	9.5	760	741	122	92	90	1,291	920	855	1.40	1.65
Miss	42	65	9.4	8.5	395	552	76	58	95	781	545	808	1.38	1.75
Ark	44	36	12.0	8.0	528	288	70	96	90	829	1,152	720	1.23	1.65
La	23	26	10.8	8.0	248	208	38	66	67	432	713	536	1.54	1.90
Okla	15	14	9.5	7.0	142	98	34	43	39	374	408	273	1.53	1.75
Tex	74	76	9.2	5.5	681	418	141	141	143	1,534	1,297	786	1.45	1.85
U. S	640	654	9.1	8.1	5,806	5,296	1,106	1,078	1,083	10,989	10,031	8,773	1.34	1.66

[1] Solid equivalent of acres from which cowpeas were gathered.
[2] Excluding cowpeas cut for hay. Cowpeas planted in corn and cowpeas grazed or hogged off are included for the Southern States where they are important but omitted for the Northern States where relatively unimportant.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 283.—*Cowpeas for seed: Average wholesale selling price per bushel at Baltimore and St. Louis, 1925–34*

Year	Baltimore						St. Louis					
	Jan.	Feb.	Mar.	Apr.	May	Average	Jan.	Feb.	Mar.	Apr.	May	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	3.90	3.90	3.90	3.90	3.95	3.91	3.90	4.00	4.10	4.10	4.10	4.04
1926	4.25	4.25	4.25	4.25	4.20	4.24	4.50	4.45	4.20	4.10	4.05	4.26
1927	2.25	2.25	2.15	2.10	2.10	2.17	2.40	2.40	2.40	2.40	2.40	2.40
1928	1.80	1.80	2.05	2.20	2.30	2.03	2.40	2.40	2.40	2.50	2.70	2.48
1929	2.85	3.30	3.75	3.75	3.75	3.48	3.50	3.60	3.60	3.70	3.75	3.63
1930	3.30	3.30	3.30	3.30	3.30	3.30	3.15	3.15	3.15	3.10	3.00	3.11
1931	3.00	2.90	2.50	2.50	2.55	2.69	2.40	2.40	2.40	2.40	2.55	2.43
1932	1.05	1.10	1.10	1.10	1.00	1.07	1.20	1.20	1.10	1.05	1.05	1.12
1933	.80	.80	.80	1.00	1.40	.96	.85	.85	.90	1.00	1.40	1.00
1934	2.25	2.25	2.25	2.20	2.00	2.20	2.00	2.00	2.00	2.00	1.75	1.95

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the markets. These prices are the average wholesale selling prices for high-quality seed. Data for earlier years in 1928 Yearbook, table 246.

TABLE 284.—*Velvetbeans:* [1] *Acreage, yield, production, and price per ton received by producers Dec. 1, by States, averages, and annual 1933 and 1934*

State	Acreage			Yield per acre			Total production			Price Dec. 1	
	Average, 1927–31	1933	1934 [2]	Average, 1924–31	1933	1934 [2]	Average, 1927–31	1933	1934 [2]	1933	1934
	1,000 acres	*1,000 acres*	*1,000 acres*	*Lb.*	*Lb.*	*Lb.*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dol.*	*Dol.*
South Carolina	63	44	50	942	950	1,000	31	21	25	13.00	17.40
Georgia	740	728	795	774	820	760	318	298	302	8.40	12.50
Florida	118	136	126	848	600	650	49	41	41	5.10	10.20
Alabama	323	458	527	761	900	910	128	206	240	8.00	11.60
Mississippi	33	43	56	1,055	1,300	1,140	20	28	32	14.00	15.90
Louisiana	31	33	41	1,069	920	930	17	15	19	14.00	17.00
United States	1,311	1,442	1,595	797.6	844.7	826.3	565	609	659	8.60	12.51

[1] The figures refer to the yield and entire production of velvetbeans in the hull. The pods are gathered from one-fourth to one-third of the acreage.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 285.—*Broomcorn: Acreage, production, and average price per ton received by producers, United States, 1919–34*

Year	Acreage harvested	Average yield per acre	Production	Price [1]	Year	Acreage harvested	Average yield per acre	Production	Price [1]
	Acres	*Pounds*	*Short tons*	*Dollars*		*Acres*	*Pounds*	*Short tons*	*Dollars*
1919	*338,000*	*334.6*	*56,500*		1927	232,000	346.7	40,200	103.21
1919	327,000	333.4	54,600	155.00	1928	299,000	360.7	53,800	97.06
1920	266,000	283.9	37,800	127.54	*1929*	*312,000*	*305.5*	*47,600*	
1921	222,000	352.8	39,200	71.63	1929	310,000	304.5	47,300	114.52
1922	275,000	278.1	38,200	219.27	1930	391,000	254.5	49,800	65.60
1923	536,000	303.2	81,400	160.17	1931	298,000	303.2	45,200	45.15
1924	434,000	358.0	77,700	96.00	1932	304,000	243.6	36,900	37.43
1925	226,000	276.2	31,200	142.60	1933	280,000	214.3	30,100	104.75
1926	319,000	342.7	54,700	79.07	1934 [2]	300,000	198.8	29,800	183.29

[1] From 1919 to 1921, Nov. 15 price; 1925 and 1926, Dec. 1 price; 1927–33, average price for the crop marketing season; 1934, Dec. 1 price.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised, 1919–28. See introductory text.

TABLE 286.—*Broomcorn: Acreage, yield, production, and average price per ton received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Lb.*	*Lb.*	*Lb.*	*Short tons*	*Short tons*	*Short tons*	*Dol.*	*Dol.*
Illinois	26	38	49	520	320	450	6,520	6,100	11,000	150	215
Missouri	1	1	(3)	324	325	-------	180	200	-------	137	-------
Kansas	42	41	25	323	200	120	6,520	4,100	1,500	99	185
Oklahoma	133	99	120	285	210	150	19,120	10,400	9,000	89	155
Texas	11	8	16	320	290	365	1,420	1,200	2,900	102	160
Colorado	55	55	52	295	160	110	8,100	4,400	2,900	93	180
New Mexico	39	38	38	273	195	132	5,400	3,700	2,500	94	175
United States	306	280	300	312.8	214.3	198.8	47,260	30,100	29,800	104.75	183.29

[1] Preliminary.
[2] Dec. 1 price.
[3] Less than 500 acres

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 287.—*Hay: Acreage, yield, production, price per ton received by producers Dec. 1, and foreign trade, United States, 1919–34*

Year	Tame hay				Wild hay				All hay	
									Foreign trade, year beginning July	
	Acreage harvested	Average yield per acre	Production	Price Dec. 1	Acreage harvested	Average yield per acre	Production	Price Dec. 1	Domestic exports [1]	Imports [1]
	1,000 acres	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 acres*	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 short tons*	*1,000 short tons*
1919	*55,653*	*1.34*	*74,724*		*17,126*	*0.91*	*15,631*			
1919	56,020	1.37	76,589	20.15	17,124	.93	15,893	16.52	67	252
1920	56,769	1.34	76,164	17.78	16,264	.95	15,504	11.39	55	126
1921	57,448	1.24	71,035	12.09	15,622	.88	13,786	6.57	61	5
1922	59,280	1.36	80,790	12.55	16,152	.89	14,362	7.32	53	35
1923	57,717	1.30	75,286	14.10	15,828	.89	14,132	8.18	24	403
1924	59,058	1.36	80,118	13.80	15,166	.83	12,613	7.92	25	119
1925	55,064	1.22	67,155	13.95	14,663	.79	11,612	8.56	18	431
1926	54,851	1.23	67,478	14.08	13,337	.67	8,971	10.04	15	209
1927	56,930	1.47	83,648	11.30	14,535	1.03	15,010	6.59	17	84
1928	53,395	1.36	72,586	12.22	12,924	.89	11,525	7.25	14	40
1929	*54,311*	*1.37*	*74,313*		*13,517*	*.81*	*10,968*			
1929	55,017	1.38	76,110	12.19	13,586	.82	11,194	8.04	9	60
1930	52,623	1.21	63,566	12.62	13,793	.78	10,744	7.10	7	121
1931	54,136	1.21	65,341	9.03	12,253	.68	8,367	6.17	3	20
1932	53,452	1.32	70,351	6.65	14,275	.85	12,137	3.99	2	9
1933	53,965	1.23	66,130	8.11	12,276	.69	8,477	5.20	2	[2] 2
1934 [3]	51,495	1.01	51,941	13.95	8,899	.53	4,749	11.58		

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1917–34, and official records of the Bureau of Foreign and Domestic Commerce.
[2] Beginning 1933–34 imports for consumption. See introductory text.
[3] Preliminary.

Bureau of Agricultural Economics.
Italic figures are census returns; other acreage, production, and yield figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text.

TABLE 288.—*Hay, tame, by kinds: Production, United States, 1919–34*

Year	Alfalfa	Sweetclover	Lespedeza (Japan clover)	Annual legumes	Clover and timothy	Grains cut green for hay	Miscellaneous tame hay [1]	All tame	Sorgo for forage and hay [2]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
1919	19,380	----------	----------	2,078	[3] 42,734	5,362	7,035	76,589	4,294
1920	20,458	----------	----------	2,149	[3] 41,319	5,150	7,088	76,164	5,170
1921	20,071	----------	----------	2,235	[3] 36,101	5,441	7,187	71,035	3,970
1922	20,110	----------	----------	2,604	[3] 46,253	4,252	7,571	80,790	3,540
1923	21,630	----------	----------	2,738	[3] 38,522	4,159	8,237	75,286	4,060
1924	21,140	999	286	2,654	44,267	3,337	7,435	80,118	3,602
1925	22,045	994	202	1,940	32,403	3,894	5,677	67,155	3,027
1926	22,140	849	334	2,819	31,181	3,983	6,172	67,478	3,133
1927	25,940	1,362	398	3,440	41,838	3,887	6,783	83,648	4,994
1928	24,214	1,349	379	3,611	33,151	3,500	6,382	72,586	3,887
1929	23,854	1,140	384	3,030	38,405	3,506	5,791	76,110	3,209
1930	22,949	851	224	2,677	27,593	4,145	5,127	63,566	2,690
1931	21,096	765	356	4,566	27,978	4,926	5,654	65,341	3,553
1932	26,227	996	444	4,869	26,289	5,195	6,331	70,351	3,845
1933	24,865	690	682	3,974	25,268	4,513	6,138	66,130	4,795
1934 [4]	18,986	456	947	5,365	16,045	4,523	5,619	51,941	3,253

[1] Includes millet, Sudan grass, redtop, Bermudas, Johnson, and orchard grass, mixed cowpea and sorghum hay, mixed hay from old meadows, and vetch hay on the Pacific coast.
[2] Not included in "All tame hay."
[3] Includes sweetclover and lespedeza.
[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised, 1919–28. See introductory text.

TABLE 289.—*Hay, tame: Acreage, yield, production, and price per ton received by producers Dec. 1, by States, averages, and annual 1933 and 1934*

State and division	Acreage harvested			Yield per acre			Production			Price Dec. 1	
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dol.*	*Dol.*
Maine	1,002	966	960	0.92	0.83	0.79	932	804	763	10.60	15.00
New Hampshire	358	336	334	1.05	.96	.98	392	322	328	14.60	17.50
Vermont	919	919	913	1.22	1.05	1.04	1,150	968	948	13.50	18.20
Massachusetts	348	330	336	1.29	1.31	1.22	469	433	411	16.30	19.60
Rhode Island	36	35	35	1.22	1.26	1.26	46	44	44	17.20	21.00
Connecticut	267	252	250	1.25	1.30	1.34	359	328	336	15.60	18.60
New York	4,223	4,030	4,000	1.21	1.14	.88	5,352	4,576	3,506	9.50	16.20
New Jersey	218	212	215	1.56	1.75	1.85	362	370	397	12.30	16.00
Pennsylvania	2,619	2,424	2,420	1.26	1.28	1.06	3,418	3,107	2,562	10.50	15.50
North Atlantic	9,990	9,504	9,463	1.20	1.15	.98	12,479	10,952	9,295	10.95	16.41
Ohio	2,635	2,468	2,629	1.11	.96	.77	3,017	2,378	2,031	6.70	14.30
Indiana	1,787	1,695	1,841	1.14	1.07	.95	2,053	1,812	1,752	7.50	13.60
Illinois	2,645	2,340	2,630	1.17	1.21	1.01	3,215	2,824	2,657	7.60	14.30
Michigan	2,599	2,491	2,373	1.14	1.23	.81	2,935	3,059	1,914	6.60	17.30
Wisconsin	3,353	2,949	2,450	1.47	1.25	.99	5,030	3,685	2,422	10.10	17.50
Minnesota	2,528	2,706	2,560	1.35	1.16	.84	3,595	3,130	2,154	7.00	14.30
Iowa	3,074	3,303	3,028	1.36	1.30	.92	4,228	4,307	2,784	6.10	15.70
Missouri	3,286	2,737	2,420	.95	.91	.62	3,150	2,493	1,510	7.00	15.70
North Dakota	1,183	1,281	1,093	1.22	.72	.40	1,323	919	435	4.90	13.60
South Dakota	1,190	1,176	747	1.11	.63	.50	1,243	738	374	6.00	16.20
Nebraska	1,595	1,871	1,480	1.68	1.53	.96	2,649	2,858	1,421	4.80	15.70
Kansas	1,180	1,142	950	1.61	1.41	.91	2,040	1,608	861	6.10	16.30
North Central	27,056	26,159	24,201	1.25	1.14	.84	34,479	29,811	20,315	6.93	15.40
Delaware	64	73	71	1.38	1.67	1.76	92	122	125	10.70	12.80
Maryland	386	403	403	1.22	1.31	1.43	479	529	578	11.40	13.00
Virginia	916	921	960	.98	1.13	.99	921	1,038	948	11.20	15.20
West Virginia	691	629	635	1.01	1.11	.79	683	696	502	11.20	17.50
North Carolina	628	666	765	.91	.82	.91	563	545	699	13.70	18.50
South Carolina	241	263	283	.71	.74	.71	183	195	201	12.50	18.60
Georgia	610	706	773	.55	.51	.54	347	358	414	10.50	13.50
Florida	80	78	89	.61	.45	.54	45	35	48	11.00	14.00
South Atlantic	3,616	3,739	3,979	.91	.94	.88	3,312	3,518	3,515	11.60	15.72
Kentucky	1,208	1,267	1,175	.99	1.06	1.02	1,154	1,341	1,202	9.00	13.50
Tennessee	1,225	1,275	1,226	.96	1.00	.89	1,134	1,271	1,089	10.20	13.40
Alabama	479	516	602	.77	.67	.65	361	346	394	10.10	12.50
Mississippi	290	315	360	1.19	1.14	1.13	355	359	406	9.00	11.80
Arkansas	530	581	610	1.04	1.17	.83	580	679	507	9.00	14.40
Louisiana	164	176	204	1.22	1.17	1.32	228	206	269	8.00	10.30
Oklahoma	426	449	444	1.47	1.32	1.12	602	591	496	7.00	12.20
Texas	503	515	517	1.07	.99	.73	534	508	379	7.90	14.00
South Central	4,826	5,094	5,138	1.04	1.04	.92	4,950	5,301	4,742	8.99	13.07
Montana	1,439	1,548	1,425	1.55	1.25	1.06	2,025	1,934	1,512	6.70	11.30
Idaho	1,027	1,086	1,016	2.21	2.14	2.06	2,309	2,329	2,095	6.30	8.60
Wyoming	720	893	665	1.36	1.16	1.01	921	1,037	670	6.80	12.90
Colorado	1,277	1,249	960	1.73	1.49	1.21	2,137	1,867	1,164	5.30	12.00
New Mexico	157	164	156	1.99	2.11	1.81	330	346	283	9.30	13.50
Arizona	121	170	147	2.59	2.64	2.41	337	449	354	7.00	13.00
Utah	604	643	501	2.14	1.94	1.08	1,232	1,249	541	6.00	12.50
Nevada	209	207	166	1.89	1.75	1.21	392	362	201	5.00	8.60
Washington	809	822	901	1.98	1.76	1.99	1,682	1,443	1,795	10.60	8.80
Oregon	906	967	1,044	1.76	1.65	1.66	1,661	1,595	1,737	9.40	8.20
California	1,665	1,720	1,733	2.41	2.29	2.15	4,004	3,937	3,722	7.90	10.00
Western	8,932	9,469	8,714	1.93	1.75	1.62	17,031	16,548	14,074	7.35	10.08
United States	54,420	53,965	51,495	1.31	1.23	1.01	72,250	66,130	51,941	8.11	13.95

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 290.—*Hay, wild:* [1] *Acreage, yield, production, and price per ton received by producers Dec. 1, by States, averages, and annual 1933 and 1934*

State and division	Acreage harvested			Yield per acre			Production			Price Dec. 1	
	Average, 1927–31	1933	1934 [2]	Average, 1922–31	1933	1934 [2]	Average, 1927–31	1933	1934 [2]	1933	1934
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dol.*	*Dol.*
Maine	6	5	5	0.95	0.80	0.85	5	4	4	7.80	10.30
New Hampshire	5	4	5	.87	.80	.90	5	3	4	9.50	11.50
Vermont	7	6	7	.93	.80	.90	6	5	6	8.40	11.60
Massachusetts	7	6	7	.97	.90	1.00	7	5	7	10.00	11.10
Rhode Island	1	1	1	.86	1.00	1.05	1	1	1	11.60	10.30
Connecticut	5	4	4	1.09	1.10	1.10	6	4	4	11.00	12.00
New York	46	38	38	1.00	.95	.75	49	36	28	7.10	10.90
New Jersey	13	13	14	1.30	1.50	1.35	17	20	19	8.00	9.00
Pennsylvania	13	9	11	.92	.80	.65	12	7	7	7.00	10.60
North Atlantic	102	86	92	1.01	.99	.87	109	85	80	7.91	10.54
Ohio	4	3	5	.97	.70	.45	3	2	2	5.00	9.50
Indiana	10	9	10	.92	.85	.60	9	8	6	5.00	9.30
Illinois	22	21	20	.86	.80	.50	19	17	10	5.60	10.00
Michigan	34	31	57	1.08	.95	.80	37	29	46	4.70	10.60
Wisconsin	220	350	357	1.20	1.10	.90	248	385	321	6.20	11.00
Minnesota	1,877	1,772	1,418	.97	.70	.50	1,887	1,240	709	5.10	11.20
Iowa	213	163	140	.99	.90	.75	209	147	105	5.00	12.00
Missouri	124	141	116	1.08	.75	.55	132	106	64	5.30	13.20
North Dakota	1,667	1,713	805	.80	.60	.35	1,394	1,028	282	4.70	12.80
South Dakota	2,273	1,256	440	.60	.40	.35	1,377	502	154	5.40	15.70
Nebraska	2,887	2,933	2,258	.73	.60	.35	2,100	1,760	790	4.20	14.40
Kansas	915	714	550	.94	.68	.55	927	486	302	4.30	12.50
North Central	10,245	9,106	6,176	.79	.63	.45	8,342	5,710	2,791	4.78	12.69
Delaware	2	3	3	1.16	1.15	1.40	3	3	4	6.00	8.00
Maryland	3	3	3	.92	.85	.85	2	3	3	7.00	10.60
Virginia	10	9	9	.75	.90	.80	8	8	7	8.00	10.00
West Virginia	8	5	10	.95	.95	.50	7	5	5	7.70	10.00
North Carolina	25	20	22	1.03	1.00	1.00	26	20	22	11.00	13.20
South Carolina	12	12	12	.69	.70	.80	8	8	10	10.00	14.00
Georgia	19	18	20	.98	.95	.95	19	17	19	7.30	10.00
Florida	4	4	4	.84	.60	.60	3	2	2	10.40	12.50
South Atlantic	82	74	83	.94	.89	.87	75	66	72	8.88	11.51
Kentucky	24	7	8	.93	1.00	.90	24	7	7	6.00	8.80
Tennessee	47	40	42	.79	.75	.75	36	30	32	6.50	9.20
Alabama	41	42	38	.76	.75	.70	32	32	27	7.80	10.00
Mississippi	37	38	38	1.02	1.00	1.00	39	38	38	6.70	8.30
Arkansas	144	168	160	1.04	1.05	.70	146	176	112	6.00	10.80
Louisiana	19	26	29	1.09	1.20	.70	20	31	20	6.50	7.00
Oklahoma	490	451	442	.95	.70	.60	488	316	265	4.60	10.60
Texas	187	217	217	.92	.80	.60	176	174	130	6.90	10.50
South Central	989	989	974	.95	.81	.65	960	804	631	5.79	10.25
Montana	617	595	446	.86	.75	.65	534	446	290	6.50	11.00
Idaho	92	96	86	1.16	1.00	.90	106	96	77	4.80	8.00
Wyoming	310	297	190	.88	.60	.50	265	178	95	6.70	12.70
Colorado	365	373	298	1.00	1.10	.80	354	410	238	5.20	11.90
New Mexico	23	23	14	.86	.75	.60	20	17	8	7.80	13.50
Arizona	11	10	10	.78	.90	.80	8	9	8	6.00	10.00
Utah	69	63	60	1.06	1.10	.70	70	69	42	4.90	10.50
Nevada	125	115	80	.96	.90	.60	118	104	48	4.50	8.00
Washington	30	29	27	1.29	1.15	1.30	40	33	35	8.40	7.40
Oregon	230	298	253	.84	1.10	.95	224	328	240	6.70	7.00
California	128	122	110	1.08	1.00	.85	143	122	94	5.80	7.00
Western	2,000	2,021	1,574	.94	.90	.75	1,882	1,812	1,175	5.99	9.75
United States	13,418	12,276	8,899	.83	.69	.53	11,368	8,477	4,749	5.20	11.58

[1] Includes prairie, marsh, and salt grasses.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 291.—*Hay, loose: Average price per ton received by producers, United States, 1925–26 to 1934–35*

ALL HAY

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average [1]
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	12.48	12.25	12.42	12.47	13.07	13.40	13.31	13.03	12.97	12.78	13.12	12.98	12.77
1926–27	12.96	13.04	12.88	13.08	13.22	13.47	13.38	13.64	13.48	13.26	13.20	13.10	13.24
1927–28	11.71	9.97	10.51	10.63	10.54	10.55	10.60	10.24	10.19	10.29	10.70	11.01	10.29
1928–29	10.86	10.39	10.59	10.60	10.89	11.23	11.61	12.06	12.37	12.30	12.15	11.88	11.22
1929–30	11.17	10.85	11.05	11.07	11.18	11.04	11.16	11.19	10.95	10.97	10.98	10.91	10.87
1930–31	10.47	11.31	12.14	12.17	12.19	11.33	11.21	10.92	10.66	10.59	10.54	9.97	11.03
1931–32	9.30	9.05	8.88	8.57	8.68	8.71	8.60	8.45	8.69	8.74	8.48	7.60	8.68
1932–33	6.95	6.82	6.80	6.54	6.49	6.14	6.03	5.91	5.89	6.12	6.37	6.43	6.17
1933–34	6.99	7.53	7.53	7.54	7.69	7.69	7.78	8.07	8.34	8.59	8.94	9.75	8.06
1934–35	10.18	12.50	13.03	13.40	13.58	13.86	------	------	------	------	------	------	[2] 13.07

ALFALFA

1925–26	13.02	13.00	12.91	13.41	13.74	14.14	13.90	14.24	13.50	13.53	13.17	13.33	13.05
1926–27	12.94	13.15	13.13	13.29	13.79	13.57	13.83	14.21	14.38	13.85	13.59	13.03	13.58
1927–28	11.73	11.47	11.34	11.52	11.75	12.02	12.09	11.84	12.46	12.56	12.90	12.42	11.94
1928–29	11.98	11.82	12.20	12.82	13.29	13.90	14.54	15.34	16.07	16.20	15.50	14.50	13.73
1929–30	13.12	13.17	13.50	13.84	14.00	14.41	14.66	14.45	13.90	13.42	12.87	12.14	13.73
1930–31	11.44	12.16	12.85	12.97	12.94	12.52	12.21	11.74	11.29	11.01	10.87	10.24	12.13
1931–32	9.80	9.86	9.67	9.58	9.94	10.31	10.14	10.25	10.84	10.79	9.97	8.63	10.05
1932–33	7.38	7.15	7.27	7.05	7.01	6.77	6.70	6.39	6.34	6.46	6.71	6.69	6.99
1933–34	7.48	7.90	8.04	8.26	8.26	8.36	8.47	8.58	8.68	8.84	9.28	10.25	8.42
1934–35	10.84	13.51	14.69	15.07	15.28	15.38	------	------	------	------	------	------	------

CLOVER

1925–26	13.03	13.67	14.06	14.09	14.74	15.28	14.79	14.82	14.79	14.88	15.13	15.07	14.48
1926–27	14.40	14.25	14.60	14.71	14.76	15.24	15.71	16.16	15.64	15.51	15.21	14.65	15.07
1927–28	13.11	12.16	11.78	11.91	11.86	11.91	12.24	11.96	12.02	12.23	12.51	12.63	12.20
1928–29	12.52	12.25	12.50	12.58	13.01	13.05	13.41	13.59	13.93	13.43	13.24	12.92	12.97
1929–30	11.60	11.61	11.82	11.77	11.82	11.97	12.24	12.24	12.31	12.27	12.19	12.25	11.98
1930–31	11.71	13.20	14.62	14.62	14.62	13.52	13.53	12.78	12.45	12.57	12.21	11.28	13.38
1931–32	10.30	10.15	9.81	9.65	9.65	9.70	9.72	9.14	9.46	9.49	9.06	8.38	9.65
1932–33	8.04	8.03	7.97	7.58	7.53	7.62	7.50	7.27	7.43	7.69	7.83	7.77	7.74
1933–34	8.17	8.78	9.04	9.03	9.10	9.13	9.39	9.69	10.25	10.71	11.07	11.73	9.53
1934–35	12.17	14.50	15.56	15.69	15.78	15.99	------	------	------	------	------	------	------

TIMOTHY

1925–26	13.89	14.06	14.98	15.11	15.38	15.87	15.82	15.79	15.59	15.81	16.31	16.64	15.35
1926–27	16.01	15.52	15.32	15.49	15.62	15.81	14.58	15.82	15.39	15.05	15.14	14.97	15.44
1927–28	13.29	12.03	11.70	11.58	11.67	11.31	11.34	11.03	11.14	11.17	11.75	11.82	11.71
1928–29	11.68	11.70	11.77	11.86	12.18	12.35	12.45	12.99	13.01	12.86	12.64	12.57	12.25
1929–30	11.91	11.61	11.60	11.67	11.70	11.57	11.55	11.55	11.57	11.79	12.04	12.29	11.72
1930–31	12.32	13.53	14.76	14.82	14.87	14.58	14.50	14.36	14.16	14.09	13.76	12.84	14.11
1931–32	10.77	10.07	9.79	9.56	9.34	9.14	8.86	8.26	8.36	8.14	8.23	7.73	9.17
1932–33	7.34	7.34	7.20	7.19	7.04	7.15	6.95	6.91	6.94	7.18	7.39	7.57	7.19
1933–34	7.82	8.39	8.50	8.60	8.72	8.52	8.76	9.15	9.46	9.91	10.32	11.16	8.98
1934–35	11.78	13.72	14.82	15.53	15.72	15.85	------	------	------	------	------	------	------

PRAIRIE

1925–26	8.93	8.55	9.24	9.41	9.39	9.78	9.73	9.53	9.48	9.08	9.54	9.59	9.34
1926–27	9.63	10.55	10.52	10.78	10.76	10.98	11.28	11.76	11.50	10.70	11.51	10.77	10.88
1927–28	9.15	8.65	7.98	7.67	7.47	7.55	7.41	6.98	6.70	6.96	7.32	7.59	7.72
1928–29	7.80	7.34	7.62	7.71	7.72	7.88	8.01	8.33	8.99	8.81	8.76	8.77	8.04
1929–30	8.21	7.96	8.13	7.97	8.11	8.18	8.30	8.41	8.11	8.12	7.96	7.78	8.14
1930–31	7.12	7.63	7.89	7.66	7.48	7.31	7.23	6.82	6.51	6.44	6.30	6.34	7.26
1931–32	6.52	6.64	6.68	6.53	6.67	6.56	6.48	6.70	7.30	7.47	7.15	6.02	6.75
1932–33	5.14	4.71	4.57	4.45	4.36	4.06	4.10	4.01	3.97	4.07	4.31	4.30	4.49
1933–34	5.18	5.54	5.49	5.46	5.35	5.34	5.47	5.58	5.77	6.11	6.50	7.42	5.68
1934–35	7.90	11.03	11.61	11.86	12.09	12.49	------	------	------	------	------	------	------

[1] For "All hay" average for the year obtained by weighting State price averages for the crop-marketing season.

[2] Preliminary for "All hay" only.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings. Data for earlier years in 1928 Yearbook, tables 287–291. Only monthly prices are comparable.

TABLE 292. *Hay, alfalfa No. 1: Average price per ton at Kansas City, 1925–26 to 1934–35*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	18.20	19.40	20.10	21.40	21.25	21.40	22.20	21.60	22.80	24.60	23.25	17.25	21.10
1926–27	17.80	18.25	19.40	19.90	20.70	20.40	20.00	19.25	18.75	19.00	19.00	15.00	19.00
1927–28	14.75	15.25	18.00	19.50	20.00	22.25	21.50	22.50	24.25	26.00	26.00	20.00	20.80
1928–29	20.00	20.50	21.00	23.25	25.00	26.00	28.25	28.75	29.75	29.25	26.00	19.50	24.80
1929–30	19.00	20.50	23.50	24.25	24.75	22.75	23.75	23.00	22.00	23.00	21.75	16.75	22.10
1930–31	17.50	21.50	22.00	22.25	23.25	22.50	21.50	19.50	19.75	19.25	17.25	12.75	19.90
1931–32	13.25	13.25	13.00	13.00	13.00	14.25	14.00	14.50	16.00	16.00	13.50	9.75	13.62
1932–33	9.75	9.75	9.75	10.50	10.50	11.00	10.50	10.25	10.75	11.00	11.20	9.65	10.38
1933–34	9.90	11.45	11.75	11.75	11.75	12.70	12.50	12.35	12.75	13.95	13.50	14.10	12.37
1934–35	17.60	22.50	25.50	21.70	21.50	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Compiled from reports made directly to the Bureau by its representative in the market. Data for earlier years in 1928 Yearbook, table 292.

TABLE 293.—*Alfalfa meal: Production in the United States, 1927–28 to 1934–35, and price per ton of No. 1 medium, bagged, in car lots, Kansas City, 1925–26 to 1934–35*

Year	Production												
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total or average
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
1927–28	19,385	14,674	19,738	28,128	36,236	37,760	35,739	40,005	30,236	25,551	17,865	16,001	321,318
1928–29	26,492	26,707	38,716	42,925	40,427	33,132	31,908	51,250	36,993	27,893	14,633	9,866	380,942
1929–30	19,075	24,408	28,884	32,252	40,927	27,785	42,077	44,857	41,847	22,871	14,634	11,259	350,876
1930–31	31,165	24,680	30,570	41,974	25,959	28,921	26,987	34,375	16,564	14,217	13,383	12,955	301,750
1931–32	23,546	15,096	17,404	18,933	16,944	21,164	19,515	12,606	12,521	10,516	8,747	10,045	187,037
1932–33	14,803	17,008	15,446	19,145	18,117	12,388	12,933	10,963	10,119	10,067	12,245	15,969	169,203
1933–34	25,350	21,762	18,127	18,660	21,258	15,619	15,254	15,299	12,324	11,584	12,278	14,747	202,262
1934–35	24,594	21,814	20,592	18,481	16,148	14,131	13,948	------	------	------	------	------	------
	Price												
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	22.90	23.00	24.00	24.25	24.40	24.10	24.40	24.80	24.00	23.10	23.90	25.40	24.02
1926–27	23.90	23.00	22.80	22.25	22.40	22.90	22.30	22.00	21.75	21.40	21.00	22.20	22.32
1927–28	21.60	21.75	22.40	23.40	23.10	22.75	23.30	24.40	26.25	29.40	33.50	34.25	25.51
1928–29	31.70	27.60	25.60	26.00	26.60	26.60	28.60	29.75	29.90	28.50	28.00	27.00	27.99
1929–30	25.10	23.50	25.00	27.30	27.50	26.80	27.40	27.40	25.50	23.60	25.00	23.80	25.66
1930–31	22.00	22.70	24.70	26.60	25.60	25.00	24.20	23.60	21.25	20.40	21.00	19.60	23.05
1931–32	18.10	17.90	16.80	17.60	17.20	19.00	18.60	18.90	17.60	17.00	17.00	17.00	17.72
1932–33	15.40	15.50	15.90	16.00	15.60	15.40	15.25	15.10	15.00	15.25	15.60	16.20	15.52
1933–34	16.00	17.30	18.20	19.40	19.10	19.00	19.00	19.20	[1]19.00	[1]19.00	[1]19.00	[1]19.10	18.61
1934–35	20.60	24.25	27.20	27.25	25.75	25.13	26.45	------	------	------	------	------	------

[1] Fine ground.

Bureau of Agricultural Economics.
Production data from reports of meal manufacturers to the Bureau through its market news service; prices are from reports of Bureau representatives in the market and are average of bulk of sales price for one day each week.

TABLE 294.—*Pasture:*[1] *Condition, 1st of month, by States, average 1922–31, and 1934*

State and division	May		June		July		August		September		October	
	Average, 1922–31	1934	Average, 1922–31	1934	Average, 1922–31	1934	Average, 1922–31	1934	Average, 1922–31	1934	Average, 1922–31	1934
	Pct.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
Maine	85	78	88	79	91	77	88	66	84	60	80	74
New Hampshire	85	84	89	82	90	81	88	64	85	61	81	77
Vermont	84	84	90	74	95	81	94	66	89	59	86	71
Massachusetts	81	83	87	80	88	85	82	62	81	68	80	79
Rhode Island	82	68	86	84	87	91	81	66	79	62	77	82
Connecticut	80	86	86	90	88	94	80	67	78	73	79	80
New York	78	66	84	55	88	63	83	48	77	49	77	72
New Jersey	79	75	83	85	79	83	75	72	77	79	77	84
Pennsylvania	78	72	84	70	83	65	78	56	75	76	74	83
North Atlantic	79.1	71.6	84.8	66.5	86.5	68.9	81.6	55.3	77.5	62.2	76.9	76.9
Ohio	78	67	82	51	81	48	78	41	76	65	77	66
Indiana	78	67	83	50	82	46	75	38	74	55	77	74
Illinois	81	65	82	43	82	33	74	36	72	47	75	68
Michigan	70	54	82	58	82	42	71	26	62	33	70	70
Wisconsin	77	55	82	42	84	42	77	48	68	42	75	69
Minnesota	77	44	78	26	80	38	71	36	65	33	70	44
Iowa	83	56	80	28	83	25	75	39	76	39	81	56
Missouri	83	62	83	48	84	33	75	12	75	18	76	48
North Dakota	73	34	74	15	78	33	72	20	67	16	67	17
South Dakota	78	29	76	8	77	27	68	19	63	14	65	18
Nebraska	84	64	85	33	86	41	77	23	73	22	75	30
Kansas	83	64	86	52	86	42	79	15	74	10	78	23
North Central	79.8	57.7	81.9	39.3	82.7	37.0	75.0	29.7	71.7	33.8	75.2	49.8
Delaware	78	72	80	86	73	84	69	70	73	84	69	94
Maryland	75	70	78	83	74	80	69	49	71	73	71	84
Virginia	78	67	81	72	79	72	75	67	79	90	74	90
West Virginia	78	69	82	60	82	55	80	49	81	76	77	74
North Carolina	82	70	82	70	82	81	80	84	81	91	76	87
South Carolina	79	66	76	73	76	70	76	69	70	73	67	66
Georgia	80	74	80	81	77	79	78	74	71	79	68	71
Florida	80	77	79	82	84	83	88	82	87	84	85	82
South Atlantic	78.8	69.7	80.5	72.3	79.3	72.0	77.5	66.1	77.4	82.5	73.8	80.6
Kentucky	81	66	83	59	84	66	78	64	76	82	75	78
Tennessee	81	68	84	64	81	71	75	66	74	71	72	74
Alabama	80	70	81	80	78	76	76	79	72	83	67	77
Mississippi	81	74	83	72	80	75	76	69	74	71	69	68
Arkansas	81	78	85	71	80	56	73	27	67	28	68	46
Louisiana	81	77	84	83	81	72	75	65	73	63	72	63
Oklahoma	82	70	86	65	83	46	74	17	65	17	67	42
Texas	82	81	85	68	82	42	72	28	63	24	67	34
South Central	81.6	75.2	84.4	67.8	81.7	53.5	73.8	40.5	67.5	41.3	68.6	49.7
Montana	81	74	82	48	82	57	76	42	74	35	74	37
Idaho	86	86	90	75	86	72	80	61	77	53	77	53
Wyoming	88	84	93	48	93	53	87	36	87	39	86	45
Colorado	85	79	87	59	84	46	80	33	81	35	78	35
New Mexico	76	58	80	44	74	31	71	29	78	29	76	37
Arizona	86	81	85	72	82	69	81	67	84	69	83	71
Utah	86	63	89	42	82	41	77	33	77	27	77	33
Nevada	84	79	88	65	84	62	82	54	78	36	79	48
Washington	84	93	85	93	82	85	72	72	67	59	69	58
Oregon	88	92	91	88	88	80	80	68	74	57	74	53
California	82	75	81	67	78	63	76	57	75	56	74	53
Western	83.3	76.8	84.7	61.5	82.1	57.9	77.6	48.1	77.0	44.6	75.9	45.8
United States	80.6	66.2	83.0	53.2	82.5	48.9	76.0	39.6	72.6	43.1	74.0	54.0

[1] For range States, condition given as reported. Probably relates largely to farm pasture, i. e., range not included.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 295.—*Pasture and range: Condition, 1st of month, United States, 1925–34*

Year	Pasture						Range [1]					
	May	June	July	Aug.	Sept.	Oct.	May	June	July	Aug.	Sept.	Oct.
	Pct.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
1925	82.2	75.7	73.0	69.5	67.4	72.9	84	86	86	83	87	92
1926	74.6	77.0	77.0	69.9	78.2	83.7	94	95	92	87	84	83
1927	87.0	88.3	92.8	86.9	84.2	80.1	89	89	94	94	95	94
1928	71.3	78.6	84.4	85.6	83.3	77.7	85	90	91	90	87	85
1929	86.9	87.2	87.5	79.7	67.1	70.2	84	87	88	86	83	84
1930	77.3	80.4	74.6	56.4	47.7	56.1	89	92	88	82	81	82
1931	78.8	78.5	73.0	63.7	63.0	63.5	84	82	79	73	73	71
1932	74.1	77.6	79.0	71.1	67.6	67.1	81	89	92	88	84	84
1933	71.5	81.5	60.5	55.6	59.5	65.6	76	82	78	74	75	76
1934	66.2	53.2	48.9	39.6	43.1	54.0	80	70	66	55	54	55

[1] Western division and includes range areas of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board. Condition of pasture for earlier years in 1928 Yearbook, table 296.

TABLE 296.—*Hops: Acreage, production, price per pound received by producers Dec. 1, foreign trade, and consumption, United States, 1910–11 to 1934–35*

Year beginning July	Acreage harvested	Average yield per acre	Production	Price Dec. 1	Foreign trade, year beginning July			Consumption by breweries [3]
					Imports [1]	Domestic exports [1]	Net exports [2]	
	Acres	*Pounds*	*1,000 pounds*	*Cents*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1910–11					8,558	13,105	4,565	45,069
1911–12					2,991	12,191	9,235	42,437
1912–13					8,494	17,591	9,133	44,238
1913–14					5,382	24,263	18,911	43,988
1914–15					11,651	16,210	4,576	38,839
1915–16	44,653	1,187	52,986	11.7	676	22,410	21,869	37,452
1916–17	43,900	1,152	50,595	12.0	237	4,875	4,664	41,959
1917–18	29,900	983	29,388	33.3	121	3,495	3,411	33,481
1918–19	25,900	829	21,481	19.3	[4]	7,467	7,472	13,925
1919–20	22,000	1,287	28,320	77.4	2,696	30,780	28,187	6,441
1920–21	27,000	1,243	33,555	35.7	4,808	22,206	18,226	5,989
1921–22	27,000	1,087	29,340	24.1	893	19,522	19,116	4,453
1922–23	23,400	1,186	27,744	8.6	1,295	13,497	12,401	4,556
1923–24	18,440	1,071	19,751	18.8	761	20,461	19,832	3,815
1924–25	20,350	1,360	27,670	10.3	439	16,122	15,737	[5] 3,256
1925–26	20,350	1,404	28,573	21.8	581	14,998	14,592	[5] 3,426
1926–27	20,800	1,516	31,522	23.1	470	13,369	12,936	[5] 3,149
1927–28	24,600	1,246	30,658	22.9	753	11,812	11,087	[5] 3,071
1928–29	26,200	1,257	32,944	19.3	649	8,836	8,198	2,735
1929–30	24,400	1,360	33,195	11.4	926	6,793	5,901	2,627
1930–31	19,500	1,202	23,447	14.8	1,026	5,593	4,583	2,197
1931–32	21,400	1,234	26,410	13.8	1,253	3,817	2,564	1,841
1932–33	22,000	1,094	24,058	[6] 17.5	4,572	2,431	[7] 2,141	7,767
1933–34	30,300	1,319	39,965	[6] 30.4	5,535	7,588	2,053	26,234
1934–35 [8]	35,800	1,127	40,345	[6] 14.3				

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1910–26; January and June issues, 1927–34, and official records of the Bureau of Foreign and Domestic Commerce.
[2] Total exports (domestic plus foreign) minus total imports; beginning 1933–34 domestic exports minus imports for consumption. (See introductory text.)
[3] 1920–21 to 1931–32 represent hops used to make cereal beverages containing less than 0.5 percent of alcohol by volume; 1932–33 includes 867,057 pounds of hops used to make cereal beverages containing less than 0.5 percent of alcohol by volume and 6,900,263 pounds fermented malt liquor containing not more than 3.2 percent of alcohol by weight; 1933–34 materials used for fermented liquor.
[4] Not over 500 pounds.
[5] Not including 57,936 pounds in 1924, 71,508 pounds in 1925, 960 pounds in 1926, and 6,294 pounds in 1927 used in the manufacture of distilled spirits.
[6] Average price, crop marketing season.
[7] Net imports.
[8] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Division of Crop and Livestock Estimates, Bureau of Foreign and Domestic Commerce, records of the Bureau of Internal Revenue, 1910–11 to 1925–26; annual reports of the Commissioner of Prohibition, 1926–27 to 1929–30; and Commissioner of Industrial Alcohol, 1930–31 to date.

TABLE 297.—*Hops: Acreage, yield, production, and average price per pound received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average 1927–31	1933	1934 [1]	Average 1922–31	1933	1934 [1]	Average 1927–31	1933	1934 [1]	1933	1934 [1]
	Acres	*Acres*	*Acres*	*Lb.*	*Lb.*	*Lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*Cents*	*Cents*
Washington	2,620	4,900	6,300	1,890	1,600	1,650	4,783	7,840	10,395	32.0	14.0
Oregon	15,900	19,000	22,000	1,037	1,135	850	16,537	21,565	18,700	30.0	15.0
California	4,700	6,400	7,500	1,650	1,650	1,500	8,010	10,560	11,250	30.0	13.5
United States	23,220	30,300	35,800	1,284	1,319	1,127	29,331	39,965	40,345	30.4	14.3

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 298.—*Hops: Acreage, yield per acre, and production in specified countries, 1932–33 to 1934–35*

Country	Acreage			Yield per acre			Production		
	1932–33	1933–34	1934–35 [1]	1932–33	1933–34	1934–35 [1]	1932–33	1933–34	1934–35 [1]
NORTH AMERICA									
	Acres	*Acres*	*Acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canada [2]	690	984	-------	1,146	1,501	-------	791	1,477	-------
United States [3]	22,000	30,300	35,800	1,094	1,319	1,127	24,058	39,965	40,345
EUROPE									
England and Wales	[4] 16,531	[4] 16,895	17,800	[5] 1,274	[5] 1,432	1,630	21,056	24,192	29,008
Belgium	1,416	1,475	2,170	1,081	1,071	1,784	1,531	1,580	3,871
France	4,361	4,220	5,004	392	753	1,204	1,711	3,178	6,026
Germany	19,800	23,638	23,850	552	634	605	10,928	14,977	14,427
Austria	116	96	-------	302	-------	-------	35	-------	-------
Czechoslovakia	23,631	25,370	27,000	702	509	573	16,583	12,915	15,478
Hungary	243	358	-------	580	547	-------	141	196	-------
Yugoslavia	3,613	4,186	-------	503	771	-------	1,819	3,228	-------
Rumania	72	52	-------	458	404	-------	33	21	-------
Poland	4,875	5,424	7,000	705	468	-------	3,436	2,541	-------
Total European countries reporting acreage and production, all years	65,739	71,598	75,824	788	794	907	51,809	56,842	68,810
OCEANIA									
Australia	952	726	-------	1,277	1,338	-------	1,669	1,654	-------
New Zealand	355	510	-------						
Total countries reporting acreage and production, all years	87,739	101,898	111,624	865	950	978	75,867	96,807	109,155
Estimated world total, excluding Union of Soviet Socialist Republics [6]	98,655	114,000	124,000	849	930	968	83,792	106,000	120,000

[1] Preliminary.
[2] British Columbia.
[3] Principal producing States.
[4] These figures include the acreage left unpicked, which was estimated at 200 acres in 1932, and 20 acres in 1933.
[5] Yield based on acreage picked.
[6] Exclusive of acreage and production in minor producing countries for which no data are available.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture except as otherwise stated.

Acreage and production figures are for the harvesting season 1932 to 1934 in the Northern Hemisphere and 1932–33 to 1934–35 in the Southern Hemisphere.

TABLE 299.—*Hops: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Czechoslovakia	15,936	1,228	19,890	11	23,271	0	12,312	0	11,014	0
United States	12,654	612	7,640	1,099	3,797	1,077	3,007	1,300	6,727	5,938
Yugoslavia	9,427	231	5,966	167	3,476	185	3,643	54	3,105	5
France	5,601	4,458	2,670	4,516	352	8,409	84	3,540	624	3,499
Poland	3 552	447	4,569	475	2,573	148	4,133	11	2,640	15
New Zealand	387	6	204	1	90	0	200	1	592	1
Union of Soviet Socialist Republics	[2] 346	[2] 126	9	7	13	0	46	0	216	0
Australia [2]	269	208	152	124	1,001	35	32	28	------	------
Total	48,172	7,316	41,100	6,400	34,573	9,854	23,457	4,934	24,918	9,458
PRINCIPAL IMPORTING COUNTRIES										
Germany	2,964	11,408	5,721	6,190	9,743	3,879	4,657	3,827	7,481	4,680
United Kingdom	4,672	7,855	2,498	4,950	2,507	5,636	2,158	1,675	2,103	5,021
Irish Free State	0	5,997	0	5,793	0	6,392	0	4,558	0	4,121
Belgium	2,173	5,300	370	7,207	266	8,701	382	5,016	942	3,951
Austria	117	3,082	37	3,074	20	2,527	19	1,502	15	696
Canada	387	2,574	216	3,386	125	889	15	751	773	675
Netherlands	89	1,273	24	1,479	27	1,237	36	677	13	483
Brazil	0	1,101	0	913	0	706	0	642	0	823
Switzerland	0	1,097	0	1,263	0	1,234	0	975	2	779
Sweden	1	1,081	1	1,281	0	1,170	1	1,080	0	524
Argentina	0	1,051	0	1,224	0	653	0	46	0	416
Japan	0	908	0	1,158	0	696	0	944	0	914
Denmark	1	814	1	1,212	2	1,155	2	696	1	496
Italy	8	672	5	586	5	315	2	170	24	185
Union of South Africa	0	530	0	513	0	305	0	252	0	310
Norway	0	334	0	261	0	305	0	251	0	219
Hungary	121	310	85	135	39	0	56	42	67	64
British India	0	166	0	114	0	107	0	133	0	84
Total	10,533	45,553	8,958	40,739	12,734	35,907	7,328	23,237	11,421	24,441

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted. Lupulin and hopfenmehl (hop meal) are not included when given separately.

TABLE 300.—*Peanuts: Acreage, yield, production, and weighted average price per pound received by producers, United States, 1919–34*

Year	Peanuts gathered				Peanuts, all [2]		
	Acreage	Yield per acre	Total quantity gathered	Price [1]	Total acreage	Yield per acre	Total production
	1,000 acres	*Pounds*	*1,000 pounds*	*Cents*	*1,000 acres*	*Pounds*	*1,000 pounds*
1919	1,132	691.9	783,273	9.33	----------	----------	----------
1920	1,181	712.5	841,474	5.26	----------	----------	----------
1921	1,214	683.1	829,307	3.99	----------	----------	----------
1922	1,005	630.0	633,114	4.68	----------	----------	----------
1923	896	722.9	647,762	6.78	----------	----------	----------
1924	1,187	627.7	745,059	[3] 5.68	1,830	615.3	1,125,932
1925	958	729.1	698,475	[3] 4.56	1,563	666.4	1,041,514
1926	843	749.5	631,825	[3] 4.97	1,315	669.1	879,923
1927	1,142	757.0	864,549	[3] 5.04	1,786	735.0	1,312,643
1928	1,211	706.1	855,096	[3] 4.90	1,930	661.2	1,276,078
1929	1,360	703.3	956,448	[3] 3.83	2,001	670.4	1,341,416
1930	1,133	659.4	747,085	[3] 3.54	1,862	632.0	1,176,700
1931	1,419	773.7	1,097,930	[3] 2.09	2,145	724.4	1,553,840
1932	1,607	645.8	1,037,840	[3] 1.53	2,425	594.1	1,440,720
1933	1,345	673.4	905,710	[3] 2.80	2,077	638.2	1,325,495
1934 [4]	1,571	676.7	1,063,035	[3] 3.23	2,279	643.2	1,465,870

[1] From 1919 to 1923, Nov. 15 price.
[2] Includes peanuts planted in corn and peanuts grazed or hogged off.
[3] Average of State prices weighted by total production.
[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.
See 1930 Yearbook, table 327, for data for earlier years.

TABLE 301.—*Peanuts: Acreage, yield, production, and weighted average price per pound received by producers, by States, averages, and annual 1933 and 1934*

State	Peanuts gathered								
	Acreage			Yield per acre			Total quantity gathered		
	Average, 1927–31	1933	1934 [1]	Average, 1922–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Virginia	149	117	146	892	950	1,000	139,489	111,150	146,000
North Carolina	226	192	240	1,010	950	1,100	231,181	182,400	264,000
South Carolina	11	14	15	686	680	640	8,055	9,520	9,600
Georgia	358	431	496	596	590	600	230,250	254,290	297,600
Florida	49	54	65	617	520	580	29,184	28,080	37,700
Tennessee	15	10	11	785	780	770	11,402	7,800	8,470
Alabama	230	262	314	564	565	600	137,830	148,030	188,400
Mississippi	13	27	30	614	600	660	8,249	16,200	19,800
Arkansas	13	25	29	612	530	475	8,050	13,250	13,775
Louisiana	12	15	17	523	650	520	6,175	9,750	8,840
Oklahoma	37	31	50	656	700	350	22,886	21,700	17,500
Texas	138	167	158	539	620	325	71,470	103,540	51,350
United States	1,253	1,345	1,571	705.9	673.4	676.7	904,222	905,710	1,063,035

State	Peanuts produced [2]							
	Acreage			Production			Price of nuts gathered for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Cents*	*Cents*
Virginia	152	118	147	141,462	112,100	147,000	2.8	3.3
North Carolina	242	199	248	247,536	189,050	272,800	2.9	3.4
South Carolina	16	18	20	11,449	12,240	12,800	3.7	4.3
Georgia	624	773	779	401,696	456,070	467,400	2.8	3.2
Florida	228	252	245	134,466	131,040	142,100	2.5	2.9
Tennessee	15	10	11	11,572	7,800	8,470	2.5	3.6
Alabama	367	377	443	219,486	213,005	265,800	2.6	3.0
Mississippi	17	33	36	10,837	19,800	23,760	4.0	4.4
Arkansas	26	35	41	16,388	18,550	19,475	3.5	4.1
Louisiana	16	20	22	8,327	13,000	11,440	4.4	4.3
Oklahoma	51	35	62	30,957	24,500	21,700	2.7	3.3
Texas	190	207	225	97,960	128,340	73,125	2.8	3.0
United States	1,945	2,077	2,279	1,332,135	1,325,495	1,465,870	2.80	3.23

[1] Preliminary.

[2] Includes peanuts planted in corn and peanuts grazed or hogged off.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 302.—*Peanuts: Average price per pound, in the shell, received by producers, United States, 1925–26 to 1934–35*

Year	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925–26	5.7	4.7	5.1	4.4	4.5	4.7	4.6	5.1	5.0	4.7	5.3	5.3	4.6
1926–27	5.1	4.9	4.6	4.7	4.9	5.4	5.6	5.7	5.9	6.6	6.4	6.4	5.0
1927–28	6.0	4.9	4.6	5.2	5.4	5.4	5.4	5.5	5.7	5.6	5.5	5.5	5.0
1928–29	5.0	4.6	4.8	5.1	5.0	5.1	5.1	5.2	5.0	5.1	4.9	4.7	4.9
1929–30	4.6	4.4	4.0	3.8	3.7	3.5	3.5	3.5	3.7	3.6	3.7	3.8	3.8
1930–31	3.9	4.2	3.8	3.2	3.2	3.6	3.7	3.9	4.1	3.9	3.8	3.6	3.5
1931–32	3.1	2.3	2.2	2.0	2.0	1.9	2.0	1.9	1.7	1.6	1.4	1.7	2.1
1932–33	2.0	1.6	1.6	1.2	1.3	1.3	1.5	1.5	2.1	2.3	2.5	2.6	1.5
1933–34	2.5	2.5	2.7	2.6	2.9	3.1	3.2	3.4	3.4	3.3	3.2	3.3	2.8
1934–35	3.3	3.2	3.1	3.3	------	------	------	------	------	------	------	------	[1] 3.2

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the marketing season. Data for earlier years in 1928 Yearbook, table 303. Only monthly prices are comparable.

TABLE 303.—*Peanuts: Average price per pound to growers, f. o. b. country shipping point basis, by months, 1924–25 to 1933–34*

VIRGINIA-TYPE BUNCH

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	6⅜	6⅝	5⅜	5⅞	6½	6½	6⅜	6¼	6⅛	5¾	5½	4⅞
1925–26	4⅜	4	3¾	4⅛	4½	4⅜	4⅜	4⅜	5	5¼	5⅛	4¾
1926–27	4¾	4	4	4½	4¾	4⅞	4⅞	4¾	5	5¾	5⅞	-------
1927–28	4½	4½	5⅝	5¾	5⅜	5⅛	5¼	5¼	5½	5¼	4¾	4¼
1928–29	3⅞	4¾	4⅞	5⅛	5¼	5	4½	4⅜	4⅜	4⅛	4¼	4¼
1929–30	4⅛	3¾	3⅝	3⅜	3	2⅞	2⅞	3	3⅛	3⅛	3¼	4⅛
1930–31	3⅞	3½	3	3⅜	3½	3⅝	3⅞	3⅞	4	4	3¾	3⅛
1931–32	2¼	1⅞	1¾	1½	1½	1⅝	1⅜	1¼	1¼	1¼	1⅝	1⅞
1932–33	1⅝	1⅜	1	1	1	1	1⅛	1⅝	1¾	2⅝	2½	2½
1933–34	2¼	2½	2⅝	2⅞	3	3¼	3¼	3½	3¼	3¼	3⅜	3⅝

SOUTHEASTERN RUNNERS

1924–25	3.5	3.6	3.2	3.2	3.6	3.5	3.2	3.0	3.3	3.5	3.2	-------
1925–26	3.0	3.0	2.9	3.3	3.8	3.8	3.5	-------	-------	-------	-------	-------
1926–27	-------	4.2	4.1	4.8	5.4	-------	-------	-------	-------	-------	-------	-------
1927–28	2.8	3.0	3.6	3.7	3.5	3.6	-------	-------	-------	-------	-------	-------
1928–29	-------	3.5	3.8	3.6	3.7	3.2	-------	2.6	-------	-------	-------	-------
1929–30	2.2	2.2	2.0	2.0	2.0	-------	-------	-------	-------	-------	-------	-------
1930–31	2.3	2.2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
1931–32	1.0	1.1	1.0	.8	.8	1.0	.9	.8	.6	.8	-------	-------
1932–33	1.0	.8	.6	.9	.9	1.0	1.1	1.6	1.8	-------	-------	-------
1933–34	2.1	2.1	2.1	2.4	2.5	2.6	2.5	2.5	2.5	2.5	2.5	-------

SOUTHEASTERN SPANISH

1924–25	4.4	4.4	4.4	4.4	4.6	4.4	4.2	4.0	3.8	3.8	3.6	4.0
1925–26	3.6	3.6	3.4	4.0	4.9	4.8	4.7	4.6	5.2	5.3	5.5	5.2
1926–27	4.6	5.2	5.4	5.9	6.6	6.8	6.7	6.2	5.8	5.8	4.0	3.6
1927–28	3.6	3.9	4.6	4.6	4.3	4.1	4.0	3.8	4.0	3.6	3.4	3.6
1928–29	3.6	4.3	4.4	4.4	4.2	3.8	3.6	3.6	3.5	3.2	3.2	3.4
1929–30	3.2	3.2	3.0	2.6	2.8	3.1	2.9	2.8	2.8	3.0	3.2	3.6
1930–31	3.2	3.1	2.8	3.0	3.4	3.4	3.6	3.6	3.5	3.2	2.8	1.5
1931–32	1.2	1.2	1.2	1.2	1.2	1.4	1.2	1.0	.8	.8	1.3	1.4
1932–33	1.2	1.1	.9	1.1	1.1	1.2	1.4	2.1	2.4	2.7	2.7	2.2
1933–34	2.4	2.5	2.5	2.8	2.7	2.8	2.6	2.6	2.7	2.7	2.7	2.8

SOUTHWESTERN SPANISH

1924–25	4.2	4.3	4.5	4.2	4.5	4.5	-------	-------	-------	-------	-------	-------
1925–26	3.3	3.4	3.3	3.8	4.2	4.3	-------	-------	-------	-------	-------	5.0
1926–27	4.3	4.4	4.6	5.2	5.7	5.7	5.8	-------	-------	-------	4.0	3.3
1927–28	3.2	3.3	4.0	4.5	4.0	3.9	3.9	3.9	-------	-------	-------	3.3
1928–29	3.3	3.3	3.5	3.7	3.6	-------	-------	-------	3.7	-------	-------	3.5
1929–30	3.1	2.8	2.5	2.2	2.3	2.2	2.1	2.1	-------	-------	4.0	3.7
1930–31	3.3	3.1	2.5	-------	3.1	3.1	-------	-------	-------	-------	2.8	1.8
1931–32	1.4	1.6	1.4	1.1	1.0	1.0	1.0	.9	.9	-------	1.6	1.5
1932–33	.9	.9	.7	.9	1.1	1.3	1.4	-------	-------	2.5	2.4	2.5
1933–34	2.3	2.2	2.2	2.6	2.7	2.7	2.7	2.7	-------	-------	2.8	3.0

Bureau of Agricultural Economics. Tabulated from peanut market-news reports.

TABLE 304.—*Peanuts: Yearly average price per pound of cleaned and shelled peanuts for prompt shipment, f. o. b. important shipping points, November 1923–October 1934, by crop years* [1]

VIRGINIA-NORTH CAROLINA SECTION: VIRGINIA, NORTH CAROLINA, AND TENNESSEE [2]

Classification	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Cleaned Virginias:											
Jumbos	9⅛	11	7¾	8⅜	11⅜	8¾	7½	8	3¾	3½	5¾
Fancys	7⅝	9½	6⅝	6⅞	7⅜	6⅞	5¾	6⅛	2⅞	3¼	4⅝
Extras	6⅞	7¾	5¾	6⅛	6⅜	6	5⅛	5¼	2⅝	3	4⅛
Shelled Virginias:											
Extra large	11	12¾	9⅜	10⅞	12	10⅞	8⅞	7⅝	4½	4	6⅞
No. 1	9⅞	9⅜	8½	8⅜	8	8⅛	5⅞	6⅝	3	3⅝	5⅜
No. 2	7⅝	5½	6¼	7	5⅞	5⅜	4½	5⅛	2⅜	3¼	5

SOUTHEASTERN SECTION: GEORGIA, ALABAMA, AND FLORIDA [3]

Shelled:											
Spanish, No. 1	11⅛	7⅞	8¼	9½	7	6¾	5¾	5¾	2⅝	3½	5⅛
Spanish, No. 2	9⅜	6¼	7	7¾	5⅞	5⅜	4¾	5	2¼	3⅜	4¾
Runners, No. 1	8⅞	7¼	7⅝	8½	6⅝	6¼	4¾	5½	2⅜	3¼	4⅞
Runners, No. 2	7⅞	5¾	6½	7⅛	5⅝	5¼	4	4⅝	2⅛	3	4½

SOUTHWESTERN SECTION: TEXAS AND OKLAHOMA [4]

Shelled:											
Spanish, No. 1	11⅜	8⅞	8⅞	10¼	7½	7¼	6⅛	6½	3	3⅝	5⅜
Spanish, No. 2	9⅝	7¼	7¾	8½	6¼	6¼	5⅛	5⅜	2⅝	3⅜	5

[1] Crop year extends from November to next October in the Virginia-North Carolina section, farther south it begins earlier.

[2] Shipping points in 1933. Virginia: Boykins, Courtland, Disputanta, Emporia, Franklin, Petersburg, Stony Creek, Suffolk, Wakefield, Walters, Waverly, and Zuni. North Carolina: Ahoskie, Edenton, Elizabethtown, Enfield, Lewiston, Plymouth, Scotland Neck, Tarboro, Williamston, and Wilmington. Tennessee: Nashville and Johnsonville.

[3] Shipping points in 1933. Georgia: Albany, Americus, Arlington, Ashburn, Bainbridge, Blakely, Cairo, Camilla, Coleman, Columbus, Cordele, Dawson, Donalsonville, Edison, Fitzgerald, Fort Gaines, Leary, Macon, Moultrie, Pelham, Savannah, Shellman, Tifton, Wrens, and Valdosta. Alabama: Andalusia, Brundidge, Dothan, Elba, Enterprise, Eufaula, Headland, New Brockton, Ozark, Samson, and Troy. Florida: Greenwood, Live Oak, Malone, and Marianna.

[4] Shipping points in 1933. Texas: Abilene, Carbon, De Leon, Denison, Dublin, Fort Worth, and Houston. Oklahoma: Durant and Hugo.

Bureau of Agricultural Economics; based on returns from cleaners, shellers, and brokers.

TABLE 305.—*Peanuts: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British India	1,320,173	0	1,590,516	0	1,058,382	0	1,314,262	0
Senegal	951,057	66	[2] 1,005,850	[2] 4	[2] 431,298	[2] 0		
China	408,762	42,314	723,145	1,142	[3] 562,601	183	390,428	527
Nigeria	266,702	0	357,815	0	421,398	0	458,315	0
French possessions—India	[4] 251,847	0						
Gambia	134,328	0	149,657	0	83,585	0		0
Netherlands Indies	61,251	735	39,008	667	48,420	575	[5] 56,889	[5] 2
Mozambique	54,487	21	58,278	262	73,595	369		
Tanganyika	25,728	0	6,877	0	35,556	0		0
Anglo-Egyptian Sudan	12,732	0	6,230	0	2,886	0	6,951	0
French Guiana	10,722	2	[3] 3,067	0	4,476	0		0
Spain	3,252	0	[3] 4,335	0	1,815	0		0
Brazil	439	0	171	0	220	0	272	0
Total	3,501,480	43,138	3,944,949	2,075	2,724,232	1,127	2,227,117	529
PRINCIPAL IMPORTING COUNTRIES								
France	12,863	1,619,507	5,300	1,927,161	3,840	1,992,675	1,114	2,264,039
Germany	0	1,311,186	0	1,839,597	0	774,878	0	986,581
United Kingdom	0	286,186	0	426,738	0	305,347	0	294,264
Italy	99	252,338	41	269,313	24	140,027	22	179,528
Netherlands	3,278	203,972	2,937	286,930	1,811	170,837	1,327	240,023
United States	4,569	78,563	1,842	13,620	7,107	561	1,426	352
Belgium	244	61,350	547	59,973	1,606	48,262	641	75,200
Denmark	0	40,102	0	92,857	0	53,705	0	74,544
British Malaya	12,361	30,390	2,238	17,434	3,376	18,384	2,860	29,136
Canada	0	29,783	0	30,141	0	22,860	0	27,318
Japan	885	26,603	150	55,761	17	31,590	15	26,263
Sweden	0	16,095	0	17,830	0	2,536	0	2,774
Algeria	313	10,025	129	17,224	38	13,440	46	
Egypt	2,599	6,894	1,146	5,035	1,203	403	974	5,395
Tunis	0	4,769	0	6,092	0	4,607	0	5,410
Union of South Africa	401	4,524	337	10,371	40	8,989	191	11,301
Argentina	112	4,029	55	13,910	100	222	433	0
Australia [2]	0	[4] 3,442	0	23	0	1,099	0	
Philippine Islands	0	3,051	665	5,364	17	4,300		
Poland	1	1,847	0	947	0	524	0	4,011
Yugoslavia	0	1,578	0	196	0	99	0	8,440
Total	37,725	3,996,234	15,387	5,096,517	19,179	3,595,345	9,049	4,234,577

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Does not include Manchuria after June 1932.
[4] 4-year average.
[5] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Includes shelled and unshelled, assuming the peanuts to be unshelled unless otherwise stated. When shelled nuts were reported, they have been reduced to terms of unshelled at the ratio of 3 pounds unshelled to 2 pounds of shelled.

TABLE 306.—*Peanut oil: Peanuts crushed and crude and virgin oil produced in the United States, 1923–24 to 1933–34*

Year	Peanuts crushed [1]					Oil produced				
	October–December	January–March	April–June	July–September	Total	October–December	January–March	April–June	July–September	Total
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1923–24	6,164	4,676	5,471	1,928	18,239	1,406	1,122	1,328	438	4,294
1924–25	17,668	24,678	16,893	9,096	68,335	3,804	5,265	4,091	1,974	15,134
1925–26	17,134	17,880	10,668	4,389	50,071	3,827	4,001	3,093	1,006	11,927
1926–27	10,576	11,143	6,321	6,966	35,006	2,544	2,446	1,400	1,600	7,990
1927–28	21,810	24,168	8,177	6,661	60,816	5,144	5,324	1,920	1,626	14,014
1928–29	14,740	19,596	10,392	11,320	56,048	3,569	4,463	2,331	2,614	12,977
1929–30	31,598	50,888	25,606	12,672	120,764	6,723	11,192	6,413	2,751	27,079
1930–31	22,744	23,940	17,950	4,996	69,630	5,139	5,214	4,061	1,134	15,548
1931–32	15,376	14,874	12,750	8,464	51,464	3,320	3,415	2,990	1,843	11,568
1932–33	19,944	13,432	20,260	11,792	65,428	4,597	2,884	4,412	2,609	14,502
1933–34 [2]	11,821	10,487	12,193	8,118	42,619	2,658	2,578	2,818	1,738	9,792

[1] Quantities reported in terms of hulled have been converted to in-the-hull basis by multiplying by 1.5.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census on animal and vegetable fats and oils.

TABLE 307.—*Peanut oil: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
France	70,810	10,793	69,791	14,374	98,224	6,751	83,819	8,171	97,334	10,637
China	70,538	0	110,880	0	108,591	0	43,206	0	40,735	0
Germany	58,861	8,040	86,785	3,378	47,350	3,547	17,836	1,458	21,302	730
Netherlands Indies	4,262	1,676	4,703	2,438	4,796	2,354	9,453	1,879	[2] 10,394	[2] 35
Denmark	4,046	1,203	9,963	1,846	11,480	1,266	9,660	356	17,406	1,165
Total	208,517	21,712	282,122	22,036	270,441	13,918	163,974	11,864	187,072	12,567
PRINCIPAL IMPORTING COUNTRIES										
Netherlands	31,567	58,871	34,939	34,287	36,479	9,973	32,778	1,773	41,586	708
United Kingdom	21,326	37,167	6,895	49,820	10,667	42,291	3,721	11,189	-------	-------
Algeria	364	29,416	1,402	45,122	822	57,594	1,297	56,585	-------	65,119
Canada	0	20,992	0	63,512	0	54,347	0	5,962	0	31,991
Italy	114	13,388	148	1,211	130	1,142	85	346	23	280
Belgium	4,343	9,717	2,310	22,883	3,409	22,907	3,854	16,161	1,981	14,283
Norway	0	7,782	78	4,422	0	3,804	660	1,065	609	921
Sweden	2,177	7,275	1,692	9,353	1,388	9,081	183	5,024	36	6,062
United States	0	4,427	0	15,565	0	14,886	0	1,489	0	1,318
Tunis	0	4,283	0	1,694	0	4,594	0	2,300	0	1,319
Philippine Islands	0	4,163	0	3,714	0	5,916	0	5,758	0	-------
Czechoslovakia	386	3,360	783	5,650	739	5,377	51	9,607	284	6,226
Finland	0	2,367	0	2,774	0	2,084	0	865	0	-------
Morocco	0	1,878	0	7,267	0	6,430	0	3,522	0	5,296
Total	60,277	205,086	48,247	267,274	53,634	240,426	42,629	121,646	44,519	133,523

[1] Preliminary.
[2] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted. Conversions made on the basis of 7.5 pounds to the gallon.

TABLE 308.—*Peas, dry field:* [1] *Acreage, yield, and production, by States, average 1928–31, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production		
	Average 1928–31	1933	1934 [2]	Average 1928–31	1933	1934 [2]	Average 1928–31	1933	1934 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Michigan	25	20	15	12.4	9.0	11.0	324	180	165
Wisconsin	28	18	20	15.2	17.0	15.5	439	306	310
Montana	27	21	22	16.0	14.0	15.0	423	294	330
Idaho	58	86	85	19.8	18.5	17.0	1,136	1,591	1,445
Colorado	52	55	37	11.5	11.0	7.5	599	605	278
Washington	----------	89	120	----------	18.6	18.5	----------	1,655	2,220
6 States [3]	190	289	299	15.4	16.0	15.9	2,922	4,631	4,748

[1] These figures are for the States in which peas are grown commercially in material quantities and do not include cowpeas.
[2] Preliminary.
[3] For Oregon 5,000 acres and 55,000 bushels were reported for 1934; data for previous years not available.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 309.—*Clover seed (red and alsike), sweetclover seed, lespedeza (Japan clover) seed, and alfalfa seed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

CLOVER SEED (RED AND ALSIKE)

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1924–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	Acres	*Acres*	*Acres*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Dol.*	*Dol.*
New York	3,540	1,000	1,000	1.9	1.75	1.4	6,340	1,800	1,400	8.80	12.70
Pennsylvania	12,600	12,000	18,000	1.6	1.7	1.6	19,980	20,400	28,800	8.30	15.00
Ohio	190,200	146,000	292,000	1.1	1.3	1.0	235,500	189,800	292,000	6.60	11.10
Indiana	166,400	110,000	176,000	.9	1.0	.7	185,500	110,000	123,200	6.00	11.10
Illinois	149,600	196,000	156,800	1.1	1.1	.9	171,000	215,600	141,100	5.90	11.40
Michigan	106,600	156,000	62,000	1.4	1.4	.8	155,800	218,400	49,600	5.90	10.80
Wisconsin	117,900	70,000	77,000	1.5	1.6	1.5	182,500	112,000	115,500	6.80	11.00
Minnesota	73,400	78,000	35,000	1.9	2.4	2.5	128,920	187,200	87,500	6.20	11.10
Iowa	121,200	187,000	41,000	1.0	.75	.6	132,140	140,200	24,600	6.20	11.20
Missouri	51,800	60,000	15,000	1.4	1.1	.9	66,720	66,000	13,500	5.80	10.40
North Dakota	2,000	1,100	600	[2] 2.3	1.4	1.0	4,500	1,500	600	6.30	11.40
Nebraska	14,860	12,000	3,000	1.6	1.8	1.5	24,340	21,600	4,500	6.50	9.50
Kansas	10,900	11,000	3,000	1.7	1.4	1.2	17,120	15,400	3,600	5.60	9.80
Maryland	----------	8,000	28,000	------	1.1	1.0	----------	8,800	28,000	7.60	10.80
Virginia	----------	3,000	6,000	------	1.0	.4	----------	3,000	2,400	7.90	12.80
Kentucky	[2] 6,667	1,000	1,000	------	1.6	1.5	[2] 10,300	1,600	1,500	6.60	9.80
Tennessee	4,600	3,000	3,000	1.9	1.6	1.3	9,120	4,800	3,900	6.60	9.60
Idaho	31,600	23,000	21,000	4.2	5.0	5.2	137,480	115,000	109,200	5.30	8.60
Wyoming	[2] 2,533	2,500	2,000	------	2.0	.5	[2] 7,400	5,000	1,000	5.80	8.20
Colorado	[2] 1,875	1,400	500	------	3.5	2.5	[2] 9,750	4,900	1,200	5.60	7.20
Oregon	18,000	14,000	22,000	3.0	3.3	3.0	60,640	46,200	66,000	6.60	10.60
United States	1,092,820	1,096,000	963,900	1.38	1.36	1.14	1,570,400	1,489,200	1,099,100	6.16	10.91

[1] Preliminary.
[2] Short-time average.

TABLE 309.—*Clover seed (red and alsike), sweetclover seed, lespedeza (Japan clover) seed, and alfalfa seed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*—Continued

SWEETCLOVER SEED

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1924–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	Acres	*Acres*	*Acres*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Dol.*	*Dol.*
Ohio	6,200	5,000	8,000	3.2	2.5	2.4	19,520	12,500	19,200	2.50	4.30
Indiana	3,000	2,000	7,000	3.2	2.0	1.5	7,800	4,000	10,500	3.00	5.00
Illinois	15,400	16,000	16,800	3.6	2.5	2.5	53,100	40,000	42,000	2.80	4.30
Wisconsin		3,000	1,400		3.5	4.0		10,500	5,600	2.70	4.40
Minnesota	41,200	73,000	62,000	4.3	4.0	4.5	182,100	292,000	279,000	1.95	3.70
Iowa	13,600	10,000	18,000	4.0	3.0	3.0	54,280	30,000	54,000	2.40	3.95
Missouri	4,600	2,000	2,000	3.3	3.1	2.7	14,300	6,200	5,400	2.85	4.15
North Dakota	63,900	42,000	35,700	4.2	2.8	2.5	247,900	117,600	89,200	2.25	4.00
South Dakota	52,200	18,400	3,700	3.7	2.4	2.9	195,980	44,200	10,700	1.95	3.10
Nebraska	22,640	21,000	21,000	3.9	3.7	3.5	92,220	77,700	73,500	2.50	3.65
Kansas	19,440	11,000	6,000	4.0	3.8	2.7	76,620	41,800	16,200	2.20	3.55
Montana	5,100	6,000	5,100	3.8	3.5	2.7	20,800	21,000	13,800	3.10	3.50
Colorado	5,200	3,500	2,000	5.0	3.5	3.5	27,000	12,200	7,000	2.55	3.90
United States	253,800	212,900	188,700	4.00	3.33	3.32	997,300	709,700	626,100	2.22	3.83

LESPEDEZA (JAPAN CLOVER) SEED [3]

Virginia		10,000	20,000		10.5	9.5		105,000	190,000	[4] 1.15	[4] 1.80
North Carolina		50,000	50,000		4.5	6.5		225,000	325,000	[4] 1.25	[4] 2.00
Kentucky		91,000	91,000		8.0	7.0		728,000	637,000	[4] 1.15	[4] 1.45
Tennessee		165,000	83,000		9.5	9.0		1,567,500	747,000	[4] 1.15	[4] 1.50
Mississippi		2,000	1,800		4.0	3.7		8,000	6,700	[4] 1.12	[4] 1.25
Louisiana		1,500	1,500		4.0	5.0		6,000	7,500	[4] 1.20	[4] 1.35
United States [5]		319,500	247,300		8.26	7.74		2,639,500	1,913,200	[4] 1.16	[4] 1.60

ALFALFA SEED

Ohio		10,000	20,000		1.2	1.3		12,000	26,000	7.00	10.80
Indiana		6,000	10,000		1.2	1.3		7,200	13,000	8.50	13.60
Michigan	[2] 8,667	25,000	20,000		1.7	1.5	[2] 4,400	42,500	30,000	6.70	11.30
Wisconsin	[2] 11,333	36,000	40,000		1.3	1.2	[2] 17,000	46,800	48,000	8.60	12.70
Minnesota	19,120	54,000	40,000	[2] 1.7	1.5	1.3	29,060	81,000	52,000	7.00	10.90
Iowa		7,500	15,000		1.5	1.4		11,200	21,000	9.00	14.90
North Dakota	12,240	15,000	11,300	1.9	1.0	1.0	21,340	15,000	11,300	7.90	10.90
South Dakota	37,040	35,000	16,400	1.9	1.4	1.2	70,500	49,000	19,700	7.00	10.80
Nebraska	23,600	47,000	42,000	2.3	2.0	2.2	54,880	94,000	92,400	6.20	9.20
Kansas	31,180	60,000	48,000	2.6	3.3	2.5	85,400	198,000	120,000	5.00	7.90
Oklahoma	12,580	12,200	14,600	3.0	3.3	2.0	39,840	40,300	29,200	5.00	6.40
Texas	3,540	2,000	2,000	2.9	3.1	3.0	10,920	6,200	6,000	6.10	8.00
Montana	38,000	31,000	10,800	2.3	2.0	2.0	85,920	62,000	21,600	6.70	12.20
Idaho	29,600	28,000	26,000	4.0	4.0	3.8	120,000	112,000	98,800	6.00	11.00
Wyoming	7,960	15,000	9,000	3.1	2.5	1.5	21,720	37,500	13,500	6.40	10.30
Colorado	9,820	10,000	6,000	3.4	2.5	2.0	32,360	25,000	12,000	5.90	8.60
New Mexico	4,380	3,200	1,900	3.6	3.0	3.1	15,420	9,600	5,900	6.00	6.60
Arizona	17,200	14,000	14,000	5.0	5.0	6.1	79,600	70,000	85,400	4.30	7.40
Utah	49,800	22,000	27,000	3.2	1.5	2.2	111,160	33,000	59,400	5.20	10.20
Oregon	2,600	3,000	3,000	[2] 3.7	2.4	3.5	9,380	7,200	10,500	7.40	11.50
California	15,980	15,400	15,000	3.6	4.3	3.0	57,900	66,200	45,000	5.20	7.50
United States	327,840	451,300	392,000	3.02	2.27	2.09	874,140	1,025,700	820,700	6.02	9.73

[1] Preliminary.
[2] Short-time average.
[3] Bushels of 25 pounds, although the weight varies in different States.
[4] Dec. 1 price.
[5] Additional quantities produced in Missouri and Illinois but data insufficient for preparing estimates.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 310.—*Clover seed, red: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	13.42	14.42	14.85	15.48	16.04	16.83	17.45	17.88	18.08	17.16	17.17	16.83	15.27
1926–27	16.63	17.21	17.85	17.89	19.07	20.18	21.16	22.75	22.45	22.07	20.69	17.94	18.20
1927–28	16.78	15.67	15.07	15.33	15.97	16.37	16.90	16.92	17.04	16.89	16.42	15.90	15.98
1928–29	16.26	16.49	16.68	16.81	16.96	17.37	17.54	17.96	17.90	17.62	17.17	16.30	16.89
1929–30	12.48	10.68	9.75	9.94	9.92	9.95	10.03	10.23	10.23	10.40	10.34	11.01	10.45
1930–31	11.65	12.47	12.35	11.76	11.78	11.64	11.54	11.59	11.80	11.84	10.76	10.08	11.55
1931–32	7.99	6.73	6.97	7.34	7.27	7.31	7.58	7.69	7.58	7.19	6.77	5.79	7.27
1932–33	5.34	4.70	4.61	4.67	4.73	4.78	4.95	5.25	5.46	5.58	6.04	6.28	5.01
1933–34	5.83	5.72	6.00	6.10	6.40	6.99	7.39	7.04	7.21	7.40	7.28	8.39	6.16
1934–35	10.17	10.98	10.98	11.48									[1] 10.91

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 334. Only monthly prices are comparable.

TABLE 311.—*Alfalfa seed: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	11.41	9.88	10.51	10.30	10.65	9.87	9.51	9.48	9.82	9.94	9.92	10.22	10.51
1926–27	9.79	9.37	9.17	8.94	9.42	9.48	10.12	10.33	10.50	11.04	10.63	10.62	10.12
1927–28	10.17	9.62	9.69	9.78	9.45	9.76	9.55	9.74	10.11	10.35	10.52	10.91	9.67
1928–29	10.24	10.38	10.25	10.71	11.96	12.69	12.67	13.19	13.84	14.19	14.69	14.91	11.70
1929–30	14.68	13.52	12.85	11.68	10.83	11.10	11.15	11.16	11.97	11.97	12.38	12.05	12.01
1930–31	12.10	11.91	11.36	10.68	10.18	9.86	9.97	10.20	9.91	9.89	9.70	9.64	10.75
1931–32	9.98	9.69	8.35	6.94	6.58	6.97	6.36	6.58	6.70	6.79	6.58	6.47	7.34
1932–33	6.53	5.98	5.59	5.25	5.19	5.42	5.68	5.89	5.93	6.32	6.64	6.82	5.67
1933–34	7.10	7.05	6.31	5.52	5.12	5.10	5.32	5.90	6.27	6.14	6.19	6.70	6.02
1934–35	6.77	7.02	9.35	10.46	10.27	10.45							[1] 9.73

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; average for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 333. Only monthly prices are comparable.

TABLE 312.—*Timothy seed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1933 and 1934*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1927–31	1933	1934 [1]	Average, 1924–31	1933	1934 [1]	Average, 1927–31	1933	1934 [1]	1933	1934 [1]
	Acres	*Acres*	*Acres*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Dol.*	*Dol.*
Pennsylvania	6,200	4,400	5,000	3.8	2.8	2.3	25,460	12,300	11,500	2.30	7.60
Ohio	39,600	21,000	13,000	4.0	3.3	2.5	164,060	69,300	32,500	1.95	7.10
Indiana	12,600	14,000	11,000	3.3	2.7	2.6	45,620	37,800	28,600	2.15	7.20
Illinois	75,800	57,000	22,800	3.4	2.6	1.5	274,800	148,200	34,200	1.95	6.40
Wisconsin	11,600	2,300	500	4.2	3.0	3.2	42,760	6,900	1,600	2.20	6.70
Minnesota	36,180	23,000	17,000	4.0	3.4	3.5	144,480	78,200	59,500	1.80	5.90
Iowa	197,280	110,000	36,000	4.0	3.1	1.75	833,440	341,000	63,000	2.00	5.90
Missouri	87,600	48,000	20,000	3.4	2.9	1.5	309,420	139,200	30,000	1.60	5.70
North Dakota	2,980	1,400	1,000	3.2	1.5	1.0	8,440	2,100	1,000	1.80	4.60
South Dakota	7,900	[2]	[2]	2.9			25,520				
United States	479,540	281,100	126,300	3.78	2.97	2.07	1,881,800	835,000	261,900	1.91	6.31

[1] Preliminary.
[2] Less than 500 acres.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 313.—*Timothy seed: Average price per bushel received by producers, United States, 1925–26 to 1934–35*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	3.36	3.21	3.21	3.31	3.41	3.38	3.56	3.51	3.47	3.36	3.41	3.26	3.35
1926–27	2.68	2.55	2.61	2.46	2.58	2.62	2.70	2.69	2.76	2.69	2.76	2.58	2.73
1927–28	2.06	1.66	1.58	1.61	1.73	1.78	1.92	1.86	1.88	1.96	2.08	2.07	1.84
1928–29	1.86	1.91	2.08	2.20	2.20	2.41	2.49	2.62	2.67	2.65	2.56	2.36	2.17
1929–30	1.69	1.88	2.02	2.17	2.25	2.46	2.37	2.51	2.67	2.69	2.65	2.53	1.97
1930–31	2.51	2.62	3.06	3.11	3.09	3.29	3.32	3.58	3.61	3.43	3.16	2.33	2.50
1931–32	1.38	1.43	1.44	1.46	1.54	1.53	1.62	1.70	1.59	1.61	1.39	1.20	1.39
1932–33	.91	.93	.88	.92	.95	.98	.99	1.01	1.02	1.10	1.10	1.38	.94
1933–34	1.65	1.83	2.13	2.20	2.18	2.13	2.59	2.94	2.96	2.75	3.25	3.29	1.91
1934–35	4.65	7.54	7.51	7.37	7.68	------	------	------	------	------	------	------	[1] 6.31

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; averages for the year obtained by weighting State price averages for the crop-marketing season. Data for earlier years in 1928 Yearbook, table 335. Only monthly prices are comparable.

TABLE 314.—*Field seeds: Average price per 100 pounds, specified markets, 1925–34*

Season, January–May	Alfalfa, Kansas City	Alsike clover, Chicago	Red clover, Chicago	Kentucky bluegrass, Kansas City	Timothy, Chicago	Sweetclover, Minneapolis	Meadow fescue, Kansas City	Lespedeza, Louisville	German millet, Kansas City	Amber sorgo, Kansas City	Hairy vetch, Baltimore	Sudan grass, Kansas City
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	22.84	23.38	33.97	28.00	6.79	12.34	9.42	19.50	4.98	2.24	8.82	5.68
1926	20.40	27.55	33.67	38.05	7.94	9.65	15.49	15.74	3.10	2.72	12.25	4.31
1927	19.90	37.42	42.54	20.53	5.97	13.65	25.00	8.57	3.25	3.10	15.10	6.68
1928	21.90	27.80	30.65	19.72	4.74	8.55	14.70	17.65	2.45	1.99	9.72	3.62
1929	26.04	34.65	33.63	31.31	6.54	8.50	16.01	20.43	3.44	2.09	9.30	5.80
1930	24.81	19.90	21.35	20.00	8.06	8.00	10.00	14.37	3.45	3.47	9.00	5.40
1931	22.56	23.88	25.04	34.37	10.55	9.22	10.76	14.69	3.69	2.81	8.45	7.38
1932	13.65	15.05	16.35	13.45	4.30	5.50	5.50	8.30	1.80	1.20	7.50	1.75
1933	13.60	11.95	11.40	8.35	3.25	4.50	4.15	7.50	1.60	1.15	7.00	2.10
1934	13.00	16.25	14.75	13.40	8.50	6.50	7.05	5.00	3.35	1.60	8.75	5.50

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the various markets. These prices are the average wholesale selling prices for high-quality seed.

TABLE 315.—*Field seeds: Average wholesale price per 100 pounds at specified markets, by months, 1925–34*

Season	Alfalfa, common, Kansas City					Alsike clover, Chicago				
	Jan.	Feb.	Mar.	Apr.	May	Jan.	Feb.	Mar.	Apr.	May
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1925	22.00	22.10	23.10	23.50	23.50	21.75	22.35	23.05	24.75	25.00
1926	20.00	20.00	20.00	21.00	21.00	26.10	27.25	27.85	28.20	28.40
1927	19.50	20.00	20.00	20.00	20.00	36.00	37.95	39.45	38.85	34.85
1928	21.50	22.00	22.00	22.00	22.00	28.35	28.10	27.80	27.70	27.10
1929	26.00	26.00	26.20	26.00	26.00	34.65	33.90	35.15	35.45	34.15
1930	23.55	24.75	25.25	25.25	25.25	20.10	19.90	19.50	20.10	19.90
1931	22.90	22.50	22.50	22.50	22.50	23.70	24.00	23.75	23.20	22.75
1932	13.50	13.50	13.50	13.80	14.00	15.50	15.30	15.00	14.75	14.65
1933	13.50	13.50	13.00	13.60	14.50	11.70	11.80	11.95	12.00	12.30
1934	12.00	13.00	13.25	13.50	13.25	16.50	16.50	16.50	16.25	15.50
	Red clover, Chicago					Sweetclover, Minneapolis				
1925	34.20	36.00	34.30	33.35	32.00	13.00	13.00	12.75	11.95	11.00
1926	32.15	36.50	34.70	34.00	34.00	9.00	9.45	9.85	9.95	10.00
1927	38.60	42.30	45.00	44.25	42.55	14.35	14.35	14.00	13.10	12.50
1928	32.50	30.95	29.95	30.20	29.70	8.75	8.70	8.45	8.45	8.40
1929	33.00	33.20	34.40	34.35	33.20	8.50	8.50	8.50	8.50	8.50
1930	21.20	21.35	21.00	21.60	21.60	8.00	8.00	8.00	8.00	8.00
1931	26.00	26.05	25.45	24.15	23.55	9.50	9.40	9.15	9.05	9.00
1932	16.80	16.50	16.25	16.15	16.10	5.75	5.50	5.50	5.50	5.25
1933	11.70	10.55	10.85	11.60	12.30	4.50	4.50	4.50	4.50	4.50
1934	15.00	15.00	15.00	14.75	14.00	6.50	6.50	6.50	6.75	6.25
	Kentucky bluegrass, Kansas City					Timothy, Chicago				
1925	28.00	28.00	28.00	28.00	28.00	6.95	6.70	6.50	6.85	6.95
1926	40.00	39.25	37.00	37.00	37.00	8.10	8.10	7.95	7.80	7.75
1927	20.25	21.00	21.00	20.40	20.00	6.05	6.05	5.85	5.95	5.95
1928	19.50	19.50	19.60	20.00	20.00	4.75	4.55	4.35	4.75	5.30
1929	31.50	30.75	31.30	31.50	31.50	6.75	6.70	6.62	6.45	6.15
1930	20.00	20.00	20.00	20.00	20.00	7.10	7.20	7.30	8.25	10.45
1931	34.10	34.25	34.50	34.50	34.50	10.20	10.45	10.45	10.70	10.95
1932	13.00	13.25	13.60	13.75	13.75	4.65	4.40	4.25	4.05	4.00
1933	8.35	8.25	8.30	8.00	8.75	3.20	3.15	3.00	3.20	3.80
1934	13.25	13.25	13.50	13.50	13.50	9.00	9.00	8.50	8.25	7.75

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the various markets. These prices are the average wholesale selling price for high-quality seed.

TABLE 316.—*Forage-plant seeds: Imports into United States, 1924–25 to 1933–34*

SEEDS PERMITTED ENTRY UNDER FEDERAL SEED ACT

Kind of seed	Year beginning July—									
	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Alfalfa	4,783	4,548	5,134	782	1,146	337	233	353	41	47
Canada bluegrass	1,150	284	882	1,102	1,228	608	985	366	191	128
Kentucky bluegrass			22							
Awnless bromegrass		11			5	4	4		2	40
Alsike clover	10,425	10,989	4,163	7,609	4,798	7,220	94			
Crimson clover	4,834	5,766	2,385	1,346	3,395	3,099	3,079	1,831	685	1,977
Red clover	6,541	19,725	10,816	4,641	7,547	2,154	2,805	31		11
White clover	1,227	1,666	975	1,778	2,410	2,278	768	893	1,943	962
Clover mixtures	13	122	24	41	250	32	15	16	1	11
Meadow fescue	1	13	16		8	1				
Foxtail millet	243	125		30	108					
Grass mixtures					5	5	1	3	1	
Orchard grass	992	253	260	173	2,377	318	342	1	19	5
Winter rape	4,345	6,526	6,788	6,438	6,982	6,681	5,119	3,762	5,174	5,281
English ryegrass	1,335	2,302	1,203	1,083	1,180	937	824	646	463	532
Italian ryegrass	831	1,683	833	456	300	244	200	75	42	26
Timothy	1	3	45	23		37				
Hairy vetch	2,068	3,986	2,124	3,895	4,064	2,483	1,628	2,365	2,894	3,141
Hungarian vetch			76							270
Spring vetch	1,266	1,603	992	563	1	821	704	202	96	718

SEEDS NOT SUBJECT TO THE FEDERAL SEED ACT

Bentgrass	258	[1] 328	537	554	649	890	213	327	52	59
Biennial white sweetclover	3,493	5,879	4,130	3,379	1,464	206				1
Biennial yellow sweetclover	52	502	174	116	29	3				
Bur clover	5									4
Crested dogtail	44	39	18	55	79	22	40	28	16	6
Chewings fescue	842	655	954	1,107	1,453	988	1,018	1,030	920	1,077
Other fescues [2]	793	1,043	384	427	671	624	379	573	307	169
Carpet grass	5	15	3	14	7	7	12	17	1	2
Dallis grass	29	1	1	16	12	27	38	19	18	6
Rescue grass		3				3	2	5	5	4
Rhodes grass	10	21	10	38	24	16	12	3	3	2
Rough-stalked meadow grass	40	75	170	286	306	347	378	554	427	426
Sudan grass							449	79		103
Velvet grass	6	8	15	11	5	42		1	9	
Wood meadow grass	26	40	24	39	28	21	13	35	6	9
Small-flowered melilot						169				
Japanese millet			2	146	141					
Redtop		[3] 4	3			5				
Yellow trefoil					2	10	6	3	10	2
Yarrow				1	2	1	1	2		1
Other forage crop	7	105	3	31	15	7	10	33	14	2,758

[1] In addition to this amount, 15,700 pounds were imported subject to the Federal Seed Act, previous to May 26, 1926.

[2] All other fescues except meadow fescue and Chewings fescue.

[3] In addition to this amount, 3,200 pounds were imported subject to the Federal Seed Act, previous to May 26, 1926.

Division of Seed Investigations, Bureau of Plant Industry.

TABLE 317.—*Sunflower seed: Production, by States, and imports, average 1924–33, annual 1924–34*

State	Average 1924–33	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934 [1]
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
California	2,208	800	1,000	1,000	3,000	4,225	4,500	250	1,700	2,800	2,800	2,700
Illinois	3,514	3,723	2,993	3,012	4,347	9,824	8,900	190	1,000	850	300	1,600
Missouri	2,093	3,300	3,520	3,995	3,053	2,109	2,700	450	250	750	800	900
Total	7,814	7,823	7,513	8,007	10,400	16,158	16,100	890	2,950	4,400	3,900	5,200
Imports for consumption	805	1,089	431	249	987	2,300	1,621	248	409	598	121	276

[1] Preliminary.

Bureau of Agricultural Economics. Production figures compiled from dealers' and growers' reports; imports from Bureau of Foreign and Domestic Commerce, Department of Commerce.

STATISTICS OF BEEF CATTLE, HOGS, SHEEP, HORSES, AND MULES

TABLE 318.—*Cattle and calves: Number on farms and farm value per head in the United States, Jan. 1, 1900–1935*

Year	All [1]	Other than milk cows		Year	All [1]	Other than milk cows	
		Number [2]	Farm value per head Jan. 1 [3]			Number [2]	Farm value per head Jan. 1 [3]
	Thousands	*Thousands*	*Dollars*		*Thousands*	*Thousands*	*Dollars*
1900 [4]	*67,720*	*50,584*		1919	70,261	49,042	41.79
1900	57,518	42,265	23.60	*1920* [4]	*66,639*	*46,964*	
1901	60,544	45,023	18.83	1920	70,325	48,870	40.01
1902	62,215	46,428	17.73	1921	68,633	47,193	29.05
1903	63,788	47,715	17.44	1922	68,663	46,841	21.89
1904	64,137	47,678	15.42	1923	67,384	45,285	23.41
1905	64,003	47,161	14.32	1924	65,832	43,544	23.03
1906	62,872	45,595	14.98	*1925* [4]	*60,760*	*43,115*	
1907	62,373	44,723	16.16	1925	63,115	40,610	22.57
1908	60,794	42,857	15.96	1926	59,977	37,666	26.40
1909	59,634	41,480	16.53	1927	57,528	35,369	28.12
1910 [4]	*61,803*	*41,178*		1928	56,701	34,572	36.30
1910	57,940	39,734	18.02	1929	57,878	35,548	42.93
1911	56,219	37,975	19.41	*1930* [4]	*65,896*	*43,397*	
1912	55,022	36,710	20.03	1930	59,730	36,820	40.44
1913	55,833	37,307	24.91	1931	60,987	37,411	28.08
1914	58,737	39,807	29.42	1932	62,656	38,181	18.32
1915	62,532	43,006	31.54	1933	65,704	40,419	14.11
1916	66,394	46,330	31.69	1934	68,290	42,105	12.77
1917	69,533	48,992	33.91	1935 [5]	60,667	35,567	14.50
1918	71,229	50,208	38.63				

[1] Figures for 1900–1919 are tentative revised estimates of the Bureau of Agricultural Economics.

[2] Obtained by subtracting the estimates of "milk cows on farms" shown in table 379 from the estimates of "all cattle on farms" shown in this table.

[3] Data for 1900–1925 are an old series adjusted on basis average relationship between the old and new series for 1926–28. Old series was weighted averages of prices by age groups only and was shown in 1928 Yearbook. The conversion factor was 0.9466 (base is old series). Data for 1926–35 are a new series, referred to above, of average values by age and sex classification, weighted by numbers in each class.

[4] Italic figures are from the census. Census dates were June 1, 1900; Apr. 15, 1910; Jan. 1, 1920 and 1925; Apr. 1, 1930. 1900, 1910, and 1930 include spring-born calves.

[5] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board

TABLE 319.—*Cattle and calves, including cows and heifers kept for milk: Number on farms and farm value per head, by States, Jan. 1, 1932–35*

State and division	Number				Farm value per head [1]			
	1932	1933	1934	1935 [2]	1932	1933	1934	1935
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Maine	249	251	254	245	37.10	26.50	24.20	27.40
New Hampshire	131	131	132	129	45.00	34.00	30.10	35.70
Vermont	435	446	416	396	40.60	31.00	29.50	33.60
Massachusetts	186	179	183	186	69.50	50.90	51.00	54.50
Rhode Island	29	29	30	28	71.20	54.50	54.70	57.70
Connecticut	159	159	160	158	66.50	49.00	49.90	57.40
New York	1,986	2,042	2,049	1,968	49.50	39.10	40.60	43.80
New Jersey	163	170	177	184	73.50	51.10	61.20	68.30
Pennsylvania	1,398	1,412	1,440	1,454	47.20	33.20	34.60	35.90
North Atlantic	4,736	4,819	4,841	4,748	49.56	37.10	38.26	41.36
Ohio	1,610	1,674	1,708	1,657	34.60	25.10	22.50	24.90
Indiana	1,428	1,485	1,515	1,485	30.50	22.80	20.00	25.10
Illinois	2,361	2,525	2,525	2,399	31.80	24.00	22.20	26.60
Michigan	1,390	1,418	1,461	1,403	34.80	25.80	23.40	27.20
Wisconsin	3,213	3,198	3,230	3,036	34.40	24.20	22.90	27.40
East North Central	10,002	10,300	10,439	9,980	33.32	24.31	22.31	26.43
Minnesota	3,246	3,408	3,511	3,090	25.60	18.30	17.00	19.60
Iowa	4,200	4,284	4,498	4,228	26.70	20.60	19.50	20.50
Missouri	2,660	2,735	2,770	2,271	23.80	18.40	15.50	18.20
North Dakota	1,566	1,750	1,835	1,157	22.30	16.60	13.80	17.80
South Dakota	1,925	2,214	2,214	1,506	22.00	17.00	14.40	16.50
Nebraska	3,138	3,326	3,592	2,694	24.20	18.80	18.00	18.70
Kansas	3,298	3,463	3,671	3,084	22.00	17.20	15.20	16.80
West North Central	20,033	21,180	22,091	18,030	24.17	18.39	16.63	18.66
North Central	30,035	31,480	32,530	28,010	27.22	20.33	18.45	21.43
Delaware	49	50	49	50	46.20	30.90	35.20	35.00
Maryland	277	282	285	288	41.20	29.00	29.60	32.50
Virginia	792	800	800	776	27.80	21.20	20.30	22.70
West Virginia	510	536	557	530	28.50	22.40	20.20	21.30
North Carolina	551	588	606	606	27.20	20.60	19.70	21.50
South Carolina	274	290	290	290	23.70	19.50	20.10	20.20
Georgia	811	852	894	894	16.50	12.30	13.00	13.50
Florida	458	480	494	522	17.90	14.00	14.80	15.50
South Atlantic	3,722	3,878	3,975	3,956	25.06	19.00	18.73	19.99
Kentucky	1,040	1,071	1,115	1,137	23.20	18.00	16.30	18.80
Tennessee	1,032	1,094	1,116	1,071	20.50	15.30	14.30	16.00
Alabama	810	875	901	910	15.80	11.80	12.30	13.10
Mississippi	993	1,052	1,094	1,094	14.40	10.20	10.30	11.10
Arkansas	848	915	960	883	16.30	12.70	10.70	11.00
Louisiana	740	784	839	872	18.20	13.10	13.60	14.70
Oklahoma	2,131	2,280	2,462	2,142	18.80	14.10	11.40	13.30
Texas	6,127	6,495	6,740	5,392	17.40	13.40	11.70	13.60
South Central	13,721	14,566	15,227	13,501	17.94	13.61	12.15	13.84
Montana	1,276	1,416	1,543	1,250	24.00	20.90	17.20	18.30
Idaho	661	701	736	714	24.70	19.50	15.90	18.10
Wyoming	863	930	1,023	800	24.50	19.90	16.20	17.20
Colorado	1,526	1,557	1,713	1,439	22.50	16.10	14.50	16.40
New Mexico	1,144	1,280	1,445	1,050	21.60	15.10	14.20	15.80
Arizona	851	894	930	930	22.30	16.50	15.10	16.00
Utah	475	460	474	403	22.70	19.70	17.10	17.60
Nevada	310	316	332	325	25.70	20.80	18.90	20.90
Washington	615	646	659	679	37.00	25.50	19.90	26.60
Oregon	795	835	877	877	29.80	21.10	15.90	24.10
California	1,926	1,926	1,985	1,985	33.60	25.50	23.70	29.30
Western	10,442	10,961	11,717	10,452	26.45	20.03	17.29	20.65
United States	62,656	65,704	68,290	60,667	26.62	19.94	18.27	21.07

[1] Sum of total value of subgroups (classified by age and sex) divided by total number and rounded to nearest dime for States. Division and United States averages not rounded. State figures are new weighted value series, not comparable to State figures previously published for the years prior to 1925.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 320.—*Cattle: Number in countries having 150,000 or over, averages 1921–25 and 1926–30, annual 1930–33*

Country	Date or month of estimate	Average 1921–25 [1]	Average 1926–30 [1]	1930	1931	1932	1933
NORTH AMERICA, CENTRAL AMERICA, AND WEST INDIES		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
United States	January 1	66,725	58,363	59,730	60,987	62,656	65,704
Canada	June	9,588	8,860	8,937	7,991	8,511	8,876
Mexico	do	[2] 2,492	[3] 7,834	[4] 10,083			
Guatemala	July	268	397	416	387	369	
Honduras		[5] 466	(517)	517			
Salvador		(340)	[4] (328)	[4] 328			
Nicaragua		[6] 1,200	(1,200)				
Costa Rica		435	436	[7] 399			
Cuba	January 1 [8]	4,841	4,496	4,845	4,339		4,448
Dominican Republic	May	640	694	900			
Puerto Rico		279	[4] 311	[4] 311			
Estimated total [9]		87,900	84,000				
SOUTH AMERICA							
Colombia		7,468	6,857	7,343	8,000		
Venezuela		2,689	[6] 3,000	[6] 3,000			
British Guiana		117	148	155	181	186	
Ecuador		[6] 1,500	1,282		1,290		
Peru	February	1,198	[4] 1,806	[7] 1,806			
Bolivia		2,145	1,918	2,050	2,064		
Chile		1,957	2,153	[4] 2,388		[4] 2,388	
Brazil [10]	September	[4] [11] 34,271	(47,492)		47,492		
Uruguay	March–April	[4] 8,432	[4] 7,128	[4] 7,128		7,372	[6] 7,200
Paraguay	January 1 [8]	4,600	(4,500)	[6] 4,000	[6] 4,000	[6] 4,000	[6] 4,000
Argentina	do [8]	[4] 37,065	[12] 32,212	[12] 32,212			
Estimated total [9]		101,500	108,500				
EUROPE							
England and Wales	June	5,824	6,072	5,850	6,065	6,358	6,620
Scotland	do	1,171	1,218	1,233	1,209	1,233	1,279
Northern Ireland	do	748	695	673	681	715	734
Irish Free State	do	4,266	4,059	4,038	4,029	4,025	4,137
Norway [13]	do	1,128	1,221	1,251	1,310	1,342	1,340
Sweden	June–July	[4] 2,736	2,980	3,060	3,109	3,120	3,086
Denmark	July	2,613	2,981	3,057	3,208	3,237	3,134
Netherlands	May–July	[4] 2,063	[4] 2,366	[4] 2,366			2,877
Belgium	January 1 [8]	1,550	1,719	1,738	1,759	1,768	1,784
France	do [8]	13,582	14,886	15,631	15,467	15,434	15,643
Spain	do [8]	3,457	3,714	(3,657)	(3,655)	3,654	
Portugal		797	[4] 853				
Italy [10]	March–April	6,812	[4] 7,108	[4] 7,108			
Switzerland	April	[4] 1,425	1,598		1,609		1,684
Germany	January 1 [8]	16,786	17,776	18,033	18,470	19,124	19,139
Austria	January–April	2,241	[4] 2,313	[4] 2,313			
Czechoslovakia [10]	January 1 [8]	4,377	4,693	[14] 4,540	4,459	4,451	4,341
Hungary	April	1,866	1,814	1,785	1,814	1,819	1,697
Yugoslavia [10]	January 1 [8]	4,204	3,749	3,765	3,850	3,912	3,851
Greece [10]	do [8]	742	926	874	881	913	921
Bulgaria [10]	do [8]	1,928	2,266				
Rumania [10]	do [8]	5,570	4,820	4,521	[15] 4,159	4,269	4,382
Poland	June	[15] 8,063	9,019	9,400	9,786	9,461	8,985
Lithuania	January 1 [8]	1,149	1,245	1,160	1,034	1,121	1,154
Latvia	June	867	977	1,026	1,117	1,153	1,156
Estonia	July	508	623	627	669	692	682
Finland	September	1,847	1,841	1,810	1,822	1,806	
Union of Soviet Socialist Republics.		54,120	64,900	52,500	47,900	40,700	38,400
Estimated total, excluding Union of Soviet Socialist Republics. [9]		98,400	103,700				
AFRICA							
Ethiopia		(4,000)	(4,000)				
Morocco		1,711	1,971	2,092	1,909	1,954	
Algeria	September	853	903	938	872	893	896
Tunis	January 1 [8]	459	464	498	502	540	543
French West Africa		2,165	2,536	2,788	2,779	2,773	
French Sudan		1,086	1,025	1,139	1,400	1,147	
Nigeria and British Cameroons		2,909	3,117	3,118	3,056	2,762	
French Cameroon		354	412	504	504	504	
Egypt [10]	September	1,310	1,551	1,572	1,614	1,791	1,769
Anglo-Egyptian Sudan		864	1,461	1,300	1,200	1,250	
Italian Somaliland	February	[4] [11] 1,246	1,110	1,113			
Eritrea		553	[4] 749				
Kenya	March–June	3,038	3,812	5,193			
Uganda	January 1 [8]	1,109	1,605	1,910	1,985	2,065	2,152
French Equatorial Africa		815	1,278	1,456	[6] 1,504		
Belgian Congo		495	303	299	312	318	
Ruanda		700	887	936	831	763	
Angola		524	1,073	1,480	1,570		

See footnotes at end of table.

TABLE 320.—*Cattle: Number in countries having 150,000 or over, averages 1921–25 and 1926–30, annual 1930–33*—Continued

Country	Date or month of estimate	Average 1921–25 [1]	Average 1926–30 [1]	1930	1931	1932	1933
		Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
AFRICA—continued							
Southwest Africa		561	643	655	645	725	628
Bechuanaland	January 1	482	602	630	641	642	777
Union of South Africa	August	9,459	10,640	10,751			
Basutoland		604	653	649	600	550	550
Rhodesia:							
Northern	January 1 [8]	289	415	473	466	452	
Southern	do.[8]	1,794	2,268	2,398	2,468	2,582	2,747
Swaziland	do.[8]	244	316	380	334	372	319
Tanganyika Territory	do.[8]	3,806	4,823	5,170	5,099	5,336	
Nyasaland	March 31	120	151	171	175	183	
Mozambique		342	446	491	517	519	
Madagascar	February	7,708	6,952	6,705	6,760	6,575	
Estimated total [9]		50,000	56,700				
ASIA							
Turkey, European and Asiatic [10]		[17] 5,060	5,464	5,243	5,363	5,870	5,664
Iran		[6] 1,000	(1,000)		1,622		
Syria and Lebanon		257	300	391	426	486	
India: [10]							
British	December–April	146,759	151,847	[4] 154,629	152,868	152,762	
Native States		33,982	36,421	[4] 47,104	47,591		
Ceylon [10]	January 1 [8]	1,459	1,570	1,650	1,660	1,580	1,580
China, including Turkistan, Manchuria, and Inner Mongolia.		[18] 19,000	[19] 23,000				[19] 23,000
Japan	January 1 [8]	1,440	1,474	1,488	1,498	1,512	1,529
Chosen	do.[8]	1,567	1,586	1,586	1,612	1,637	1,664
Taiwan [10]	do.[8]	407	385	390	391	383	367
French Indo-China [10]		3,600	3,896	3,919	3,913	3,917	
Siam [10]	March	6,701	8,783	9,153	9,513	9,867	
Philippine Islands [10]	January 1 [8]	2,393	2,909	3,110	3,249	3,432	
Netherlands Indies:							
Java and Madura [10]	do.[8]	5,287	5,708	5,700	5,768	6,014	6,321
Outer possessions [10]	do.[8]	1,872	1,994	2,049	2,064	2,069	2,065
Estimated total, excluding Union of Soviet Socialist Republics. [9]		232,600	248,200				
OCEANIA							
Australia	January 1 [8]	13,789	11,873	11,202	11,721	12,260	12,783
New Zealand	January 31	3,393	3,439	3,766	4,081	4,072	4,192
Estimated total [9]		17,400	15,500				
Total countries reporting all periods:							
To 1932 (63) [20]		442,421	458,928	452,559	448,795	446,586	
To 1933 (41) [20]		254,473	260,594	250,133	247,773	245,571	247,586
Estimated world total including Union of Soviet Socialist Republics. [21]		641,900	681,500				

[1] Average for 5-year period if available, otherwise for any year or years within this period except as otherwise stated.

[2] Incomplete.

[3] Average of 1926 estimate for 93 percent of municipalities and the final figures of the Apr. 26, 1930, census. This census is the first complete census of numbers in Mexico and is therefore not strictly comparable with earlier estimates.

[4] Census. [5] Year 1918. [6] Unofficial. [7] Year 1929.

[8] Countries reporting as of December have been considered as of Jan. 1 of following year.

[9] These totals include interpolations for a few countries not reporting each year and rough estimates for some others.

[10] Buffaloes included. [11] Year 1920. [12] Census June. [13] In rural communities only.

[14] Census figures for May 27.

[15] Estimate of total number based on number in rural communities only as compared with preceding year.

[16] November.

[17] Included unofficial estimate of 690,000 buffaloes.

[18] Estimate based on official figures in 1920 for 20 Provinces, which supported 63 percent of the cattle in China in 1914. No data available in 1920 for such important Provinces as Hupeh with 1,898,000 in 1914, Hunan with 2,192,000, Szechuan with 3,009,114, Kwantung with 2,288,000, and Kwangsi with 1,527,000.

[19] Estimate based on official figures in 1932 or 1933 for 22 Provinces, which supported 97 percent of the cattle in China in 1914. The official estimate excluding Turkistan and Inner Mongolia for 1932 or 1933 was 22,333,000. Estimates for this territory and for Manchuria included with China in this table.

[20] Comparable totals for number of countries indicated.

[21] Estimated totals for continents are as follows in millions of head for the 5-year average, 1909–13: North America, Central America, and West Indies, 74.9; South America, 80.3; Europe, excluding Union of Soviet Socialist Republics, 103.3; Africa, 33.8; Asia, excluding Union of Soviet Socialist Republics, 195.3; Oceania, 13.8; world including Union of Soviet Socialist Republics, 562.0.

Bureau of Agricultural Economics; compiled from reports of United States Government representatives abroad, original official sources, and the International Institute of Agriculture unless otherwise stated.

Figures in parentheses interpolated. For later figures for individual countries see Cattle and Beef issue of Foreign Crops and Markets.

TABLE 321.—*Cattle and calves: Receipts at principal public stockyards and a public stockyards, 1925–34*

CATTLE

Year	Chicago	Denver	East St. Louis	Fort Worth	Kansas City	Omaha	South St. Joseph	South St. Paul	Sioux City	Total 9 markets [1]	All other stockyards reporting	Total all stockyards reporting [1]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	3,023	527	1,038	1,060	2,409	1,593	609	995	845	12,098	5,019	17,117
1926	3,257	473	1,074	944	2,183	1,692	563	1,180	885	12,251	4,783	17,034
1927	2,872	577	1,004	956	2,070	1,463	541	955	747	11,186	5,072	16,258
1928	2,505	590	900	886	1,859	1,423	511	917	750	10,342	4,847	15,189
1929	2,388	556	832	762	1,836	1,444	500	879	778	9,974	4,363	14,337
1930	2,239	505	820	638	1,802	1,485	459	779	774	9,501	4,297	13,798
1931	2,287	440	792	598	1,665	1,570	433	811	769	9,364	4,122	13,486
1932	2,006	365	709	444	1,570	1,333	360	690	545	8,022	3,809	11,831
1933	2,067	348	727	417	1,443	1,417	399	835	774	8,427	3,920	12,347
1934 [2]	2,727	633	1,225	757	2,256	1,971	650	1,476	1,184	12,879	6,800	19,679

CALVES

1925	848	60	406	310	549	116	125	641	52	3,108	3,842	6,950
1926	755	56	452	241	433	123	116	730	84	2,991	3,846	6,837
1927	710	63	444	330	400	98	99	627	62	2,834	3,671	6,505
1928	762	77	415	325	351	94	87	573	63	2,746	3,543	6,289
1929	672	68	391	327	342	102	89	546	61	2,601	3,502	6,103
1930	557	88	383	331	364	120	100	559	82	2,586	3,782	6,368
1931	547	64	379	243	292	120	76	603	82	2,406	3,723	6,129
1932	447	59	356	209	284	120	77	544	49	2,145	3,356	5,501
1933	440	71	392	223	276	120	84	515	56	2,178	3,409	5,587
1934 [2]	737	132	590	381	594	278	144	840	222	3,920	4,170	8,090

[1] Rounded totals of the complete figures.
[2] Includes purchases for Federal Surplus Relief Corporation from June 6 to Dec. 31.

Bureau of Agricultural Economics; compiled from data of the livestock and meat reporting service of the Bureau.
Receipts, 1915–24 are available in 1927 Yearbook, table 337.

TABLE 322.—*Cattle and calves: Receipts and stocker and feeder shipments at United States public stockyards, 1925–34*

RECEIPTS, CATTLE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	1,353	1,056	1,273	1,201	1,139	1,160	1,398	1,632	1,592	2,126	1,717	1,470	17,117
1926	1,314	1,065	1,233	1,146	1,277	1,279	1,279	1,421	1,827	2,030	1,836	1,327	17,034
1927	1,327	1,080	1,172	1,107	1,348	1,185	1,089	1,494	1,482	2,008	1,749	1,217	16,258
1928	1,272	1,045	966	1,119	1,188	1,057	1,158	1,308	1,669	1,913	1,419	1,075	15,189
1929	1,160	814	953	1,146	1,097	977	1,166	1,156	1,572	1,787	1,405	1,104	14,337
1930	1,155	908	1,045	1,066	984	996	1,012	1,062	1,511	1,677	1,180	1,202	13,798
1931	1,040	878	1,017	1,057	1,027	1,017	1,035	1,302	1,279	1,531	1,312	991	13,486
1932	960	869	897	897	919	870	888	1,125	1,232	1,346	1,039	789	11,831
1933	908	773	758	843	1,030	985	1,008	1,173	1,178	1,587	1,203	901	12,347
1934 [1]	1,145	958	969	1,053	1,192	1,215	2,129	3,097	2,822	2,222	1,598	1,279	19,679

RECEIPTS, CALVES

1925	516	473	588	626	597	586	572	612	566	663	565	586	6,950
1926	526	486	578	564	616	592	541	576	570	644	625	519	6,837
1927	504	476	571	567	607	547	457	571	597	627	598	473	6,505
1928	499	471	499	566	610	501	492	521	522	629	544	435	6,289
1929	479	381	497	606	563	475	499	463	531	620	538	451	6,103
1930	484	418	502	578	533	464	499	543	596	700	517	534	6,368
1931	468	425	518	560	524	522	453	519	518	606	554	462	6,129
1932	416	414	480	478	478	468	403	481	457	550	504	372	5,501
1933	416	334	413	453	528	465	448	496	474	592	496	442	5,587
1934 [1]	508	449	530	538	617	597	856	1,178	956	778	565	518	8,090

STOCKER AND FEEDER SHIPMENTS, CATTLE

1925	194	163	213	254	198	143	234	347	409	681	449	308	3,593
1926	207	164	171	190	201	158	188	240	495	648	521	273	3,456
1927	187	162	182	184	215	157	128	252	384	626	548	278	3,303
1928	215	175	154	236	263	165	175	312	525	704	420	218	3,562
1929	159	106	146	266	266	157	159	246	394	673	459	219	3,250
1930	201	173	176	219	172	108	99	130	368	570	375	267	2,858
1931	189	130	126	156	135	100	108	231	348	495	384	207	2,609
1932	108	96	108	116	100	90	136	247	347	392	296	168	2,203
1933	126	107	87	127	153	129	96	183	233	444	310	129	2,124
1934 [1]	129	100	119	124	136	124	439	731	483	396	259	136	3,176

STOCKER AND FEEDER SHIPMENTS, CALVES

1925	12	13	17	17	18	11	9	13	18	37	40	25	230
1926	18	13	13	13	17	11	11	12	26	45	49	28	256
1927	18	13	18	19	20	12	10	19	22	49	67	41	306
1928	18	19	19	18	21	19	21	24	37	94	76	35	403
1929	19	12	16	26	28	19	14	20	29	85	97	37	401
1930	32	28	30	36	28	21	10	20	75	121	103	64	568
1931	33	18	20	19	18	12	16	30	42	86	103	38	435
1932	22	14	18	22	18	15	21	33	43	86	81	42	416
1933	27	22	15	25	40	20	15	30	29	83	71	46	423
1934 [1]	36	21	20	23	26	15	42	70	67	81	59	29	489

[1] Includes purchases for Federal Surplus Relief Corporation from June 6 to Dec. 31.

Bureau of Agricultural Economics. Compiled from data of the livestock and meat reporting service of the Bureau. Earlier data in 1930 Yearbook, table 353.

TABLE 323.—*Feeder cattle, inspected: Shipments from public stockyards, 1925–34*

Origin and destination	Calendar year									
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Market origin:										
Chicago, Ill.	230	245	167	171	157	132	173	141	128	145
Denver, Colo.	281	288	328	403	334	327	228	165	169	167
East St. Louis, Ill.	113	110	97	90	99	86	95	103	81	115
Fort Worth, Tex.	196	233	273	285	237	190	153	116	86	138
Indianapolis, Ind.	55	44	29	31	27	27	25	24	25	35
Kansas City, Kans.	825	706	671	684	680	650	635	595	504	511
Louisville, Ky.	27	19	34	24	17	10	7	23	25	38
Oklahoma City, Okla.	78	69	89	80	85	70	64	70	74	90
Omaha, Nebr.	390	379	329	355	398	405	385	330	332	284
Sioux City, Iowa	247	300	237	274	286	282	229	171	248	264
South St. Joseph, Mo.	71	56	51	60	61	90	88	73	86	104
South St. Paul, Minn.	208	291	203	198	209	153	138	95	102	244
Wichita, Kans.	200	152	198	205	164	217	173	116	117	280
All other inspected	177	195	268	344	326	312	301	290	289	434
Total	3,098	3,087	2,974	3,204	3,080	2,951	2,694	2,312	2,266	2,849
State destination:										
Colorado	131	169	180	210	184	156	113	80	76	71
Illinois	437	435	290	310	313	275	321	364	264	276
Indiana	150	167	136	113	106	94	132	133	94	147
Iowa	487	577	431	499	538	506	483	434	525	492
Kansas	468	378	423	478	463	454	351	271	274	210
Kentucky	41	43	86	59	46	24	27	34	36	113
Michigan	49	41	36	41	34	21	24	26	24	27
Minnesota	36	32	25	29	42	41	28	21	21	23
Missouri	277	255	267	229	203	192	218	186	198	162
Nebraska	427	374	386	474	447	561	419	264	310	210
Ohio	97	102	93	70	83	52	93	91	63	114
Oklahoma	168	159	170	143	155	128	103	97	92	51
Pennsylvania	31	30	31	70	44	37	39	57	62	115
South Dakota	38	32	50	64	75	91	45	26	32	30
Texas	116	151	160	196	155	123	98	71	52	82
Wisconsin	26	29	12	12	20	14	11	7	8	9
All other	119	113	198	207	172	182	189	150	135	717
Total	3,098	3,087	2,974	3,204	3,080	2,951	2,694	2,312	2,266	2,849

Bureau of Agricultural Economics. Compiled from Bureau of Animal Industry inspection records. Data for earlier years in 1928 Yearbook, table 356.

TABLE 324.—*Beef cattle and veal calves: Average price per 100 pounds received by producers, United States, 1925–34*

BEEF CATTLE

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	5.61	5.66	6.15	6.50	6.44	6.43	6.54	6.55	6.25	6.26	6.11	6.17	6.23
1926	6.29	6.39	6.62	6.64	6.55	6.55	6.43	6.27	6.46	6.40	6.29	6.37	6.43
1927	6.42	6.57	6.79	7.12	7.15	7.06	7.11	7.18	7.39	7.52	7.96	8.29	7.23
1928	8.45	8.70	8.81	8.88	9.03	9.07	9.16	9.45	9.93	9.62	9.21	8.90	9.12
1929	8.91	8.83	9.09	9.45	9.64	9.67	9.75	9.55	9.16	8.85	8.57	8.43	9.15
1930	8.66	8.63	8.72	8.60	8.32	8.14	7.06	6.22	6.58	6.50	6.39	6.33	7.46
1931	6.38	5.98	5.98	5.95	5.61	5.21	5.11	5.05	4.96	4.72	4.76	4.32	5.31
1932	4.29	4.08	4.25	4.19	3.91	3.81	4.52	4.35	4.31	3.91	3.73	3.41	4.07
1933	3.28	3.31	3.42	3.54	3.95	4.04	3.97	3.79	3.61	3.50	3.32	3.12	3.63
1934	3.33	3.67	3.79	3.89	4.13	4.00	3.90	3.71	4.21	3.96	3.81	3.88	3.88

VEAL CALVES

1925	8.49	8.85	9.21	8.80	8.35	8.18	8.65	8.81	9.07	9.52	9.16	9.17	8.85
1926	9.43	9.85	9.74	9.45	8.92	9.65	9.47	9.54	10.06	10.29	9.54	9.44	9.61
1927	9.75	10.10	10.10	9.90	9.37	9.46	9.82	10.37	10.78	11.04	10.67	10.71	10.15
1928	10.87	11.30	11.33	11.18	11.17	11.55	11.86	12.28	13.03	12.61	11.99	11.81	11.72
1929	12.20	12.17	12.51	12.09	12.10	12.05	12.40	12.38	12.51	12.15	11.79	11.68	12.17
1930	11.84	11.69	11.24	10.73	9.68	9.83	9.19	8.78	9.20	9.30	8.84	8.48	9.91
1931	8.61	8.20	7.66	7.38	7.15	6.81	6.66	6.75	6.95	6.58	6.02	5.59	7.04
1932	5.62	5.80	5.69	5.04	4.67	4.63	5.00	4.93	5.12	4.75	4.47	4.16	5.00
1933	4.12	4.75	4.57	4.36	4.50	4.51	4.62	4.75	4.96	4.84	4.66	4.20	4.61
1934	4.46	5.02	4.95	4.79	4.83	4.52	4.45	4.55	5.23	5.19	4.97	4.88	4.81

Bureau of Agricultural Economics. Based on reports of special price reporters. Monthly prices of beef cattle, by States, weighted by number of cattle Jan. 1 to obtain a price for the United States; monthly prices of veal calves, by States, weighted by number of milk cows Jan. 1 to obtain a price for the United States; yearly price obtained by weighting monthly prices by Federal inspected slaughter.

TABLE 325.—*Cattle and calves: Average price per 100 pounds at Chicago, by months, beef steers and veal calves, 1925–34*

BEEF STEERS [1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	8.97	9.15	9.93	9.99	9.90	10.34	11.28	11.10	11.04	10.80	10.16	9.72	10.16
1926	9.48	9.42	9.42	9.11	9.07	9.51	9.44	9.30	10.00	10.00	9.48	9.43	9.47
1927	9.70	9.81	10.20	10.51	10.68	11.12	11.78	12.02	12.63	13.43	13.57	13.08	11.36
1928	13.67	13.15	12.83	13.01	13.19	13.86	15.11	15.30	15.91	14.61	13.84	12.86	13.91
1929	12.51	11.92	12.68	13.52	13.67	14.10	14.59	14.22	13.92	13.81	13.00	12.74	13.43
1930	12.62	12.46	12.33	11.88	11.15	10.59	9.42	9.48	10.95	10.64	10.47	10.17	10.95
1931	9.43	8.36	8.40	7.82	7.30	7.43	7.62	8.53	8.29	8.38	8.53	7.11	8.06
1932	6.61	6.21	6.31	6.35	6.04	6.66	7.90	7.88	7.91	7.09	6.29	5.44	6.70
1933	4.95	4.80	5.04	4.96	5.64	5.79	6.01	5.88	5.75	5.53	5.13	5.17	5.42
1934	5.35	5.49	5.91	6.42	6.91	7.34	7.21	7.34	8.06	7.48	7.28	7.41	6.76

VEAL CALVES

1925	10.72	11.94	11.24	9.49	9.42	9.56	10.91	11.94	12.18	11.19	10.60	11.30	10.87
1926	12.18	12.43	12.06	9.91	11.04	11.09	11.38	12.46	12.59	11.80	11.09	11.31	11.61
1927	12.20	12.40	11.54	10.90	11.07	11.68	13.32	14.75	15.94	14.42	13.48	13.09	12.90
1928	13.70	15.04	13.75	13.02	13.95	13.24	14.84	16.68	17.36	14.94	14.22	13.94	14.56
1929	15.83	14.74	15.50	14.43	13.39	14.22	15.30	15.81	16.64	13.76	13.70	13.82	14.76
1930	14.80	12.66	11.96	10.55	11.36	11.03	11.37	11.98	11.83	11.33	9.53	9.77	11.51
1931	10.62	9.26	7.98	8.12	8.35	8.48	7.81	9.32	9.28	7.75	6.56	6.40	8.33
1932	7.56	7.52	6.41	5.44	5.70	6.06	6.10	6.80	7.06	5.48	5.09	5.26	6.21
1933	5.57	6.49	5.60	5.18	5.72	5.24	5.94	6.69	7.12	6.47	5.42	5.16	5.88
1934	6.01	6.62	6.20	5.94	5.97	4.94	5.26	6.25	7.58	6.82	5.78	5.87	6.10

[1] Western steers not included.

Bureau of Agricultural Economics.

Beef-steer prices are the weighted average price of all grades of beef steers sold out of first hands at Chicago. Veal-calf prices from the livestock and meat reporting service of the Bureau on Medium to Choice grades prior to July 1, 1927, and subsequent prices on Good and Choice grades.

Earlier data in 1932 Yearbook, table 321.

TABLE 326.—*Cattle, choice steers for chilled beef: Average price per 100 pounds, by months, at Buenos Aires, 1925–35*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	5.54	5.54	6.20	6.20	6.51	6.48	6.54	6.72	6.91	6.25	5.66	5.32	6.16
1926	5.40	5.42	5.27	5.39	5.52	5.24	5.58	5.70	5.45	4.63	4.06	4.21	5.16
1927	4.21	4.73	4.63	5.03	4.81	5.15	5.95	6.55	6.84	7.13	6.34	5.81	5.60
1928	6.08	6.01	6.24	6.47	6.68	7.01	6.64	6.66	6.63	6.16	5.50	5.49	6.30
1929	5.89	5.90	5.85	5.87	5.87	6.03	6.09	6.06	6.09	6.80	6.02	5.92	6.03
1930	5.72	5.35	5.45	5.71	5.57	5.43	5.24	5.27	5.16	4.84	4.38	3.67	5.15
1931	3.50	3.73	4.21	3.97	3.69	3.68	3.58	3.59	3.22	2.52	2.76	2.34	3.40
1932	2.20	2.30	2.18	2.18	2.25	2.28	2.29	2.27	2.13	1.80	1.69	1.58	2.10
1933	1.49	1.83	1.89	2.05	2.60	2.75	3.20	3.15	3.35	3.23	3.14	2.61	2.61
1934	2.50	2.62	2.67	2.74	2.56	2.60	2.73	2.97	2.94	2.86	2.83	2.69	2.73
1935	2.80	2.85	------	------	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Compiled from Review of the River Plate, as follows: 1925–27, average of Thursday quotations; 1928–34, average of high and low for weeks ended Saturday. Prices are quoted in live weight per pound. Converted at average monthly rates of exchange as given in Federal Reserve Bulletin. Data for earlier years in 1928 Yearbook, table 359.

TABLE 327.—*Cattle and calves: Shipments, slaughter, value of production, and income by States, 1933*

State and division	Shipments and local slaughter				Inshipments, stocker, feeding, breeding, and dairy		Farm slaughter				Value of amount consumed on farms	Receipts from sales	Gross income	Value of production
	Cattle		Calves				Cattle		Calves					
	Head	Total weight	Head	Total weight	Head	Total weight	Head	Total weight	Head	Total weight				
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	36	29,220	54	5,700	1	800	4	2,800	9	1,125	31	1,500	1,531	1,449
New Hampshire	23	18,820	34	3,490	3	2,460	1	800	2	260	8	759	767	741
Vermont	66	54,620	140	14,150	7	5,740	7	4,900	11	1,485	66	2,582	2,648	2,149
Massachusetts	49	40,100	64	6,460	33	28,050	2	1,600	3	330	30	444	474	811
Rhode Island	7	5,810	10	1,000	6	4,980	1	800	1	120	12	65	77	151
Connecticut	27	22,210	62	6,450	10	8,300	2	1,500	2	260	22	719	741	908
New York	240	206,050	640	95,350	6	4,950	28	23,800	60	9,360	507	12,599	13,106	12,891
New Jersey	35	31,500	67	9,983	23	19,550	2	1,800	2	298	29	451	480	1,320
Pennsylvania	190	166,250	469	70,350	89	64,525	48	40,800	51	7,140	851	10,058	10,909	11,004
North Atlantic	673	574,580	1,540	212,933	178	139,355	95	78,800	141	20,378	1,556	29,177	30,733	31,424
Ohio	270	230,450	429	68,640	66	38,610	26	22,100	25	4,000	654	12,384	13,038	14,176
Indiana	353	320,840	350	52,500	97	62,565	10	7,750	10	2,500	264	14,187	14,451	14,899
Illinois	886	828,285	465	65,750	423	293,985	20	16,500	30	6,000	532	26,256	26,788	27,152
Michigan	192	159,520	341	52,855	29	15,805	33	26,400	62	9,920	576	9,136	9,712	10,603
Wisconsin	370	366,300	1,054	121,210	13	8,970	30	27,000	130	16,250	438	17,816	18,254	17,682
East North Central	2,071	1,905,395	2,639	360,955	628	419,935	119	99,750	257	38,670	2,464	79,779	82,243	84,512
Minnesota	759	648,345	732	102,122	152	95,000	65	54,600	35	7,700	1,551	24,762	26,313	28,814
Iowa	1,773	1,696,030	275	43,500	756	491,400	33	27,720	33	6,600	1,190	53,501	54,691	61,217
Missouri	1,003	901,500	514	102,800	493	298,265	18	13,770	10	3,000	354	29,151	29,505	31,469
North Dakota	379	316,465	96	13,440			32	24,960	20	4,000	660	9,987	10,647	12,476
South Dakota	605	484,000	71	14,200	32	20,480	14	11,200	14	3,500	458	17,829	18,287	18,290
Nebraska	1,359	1,254,950	130	37,500	659	441,530	25	21,000	30	9,000	1,080	36,524	37,604	41,951
Kansas	1,264	1,175,180	202	53,450	474	284,400	10	8,100	20	7,100	444	35,231	35,675	39,627
West North Central	7,142	6,476,470	2,020	367,012	2,566	1,631,075	197	161,350	162	40,900	5,737	206,985	212,722	233,844
North Central	9,213	8,381,865	4,659	727,967	3,194	2,051,010	316	261,100	419	79,570	8,201	286,764	294,965	318,356
Delaware	4	3,200	23	3,105					2	270	5	336	341	312
Maryland	31	26,350	104	14,040	12	7,800	5	4,250	6	810	83	1,788	1,871	1,980
Virginia	145	129,250	151	22,350	7	3,500	10	7,600	11	1,485	135	5,659	5,794	5,885
West Virginia	87	75,300	52	9,100	1	585	10	8,250	15	2,625	153	3,617	3,770	4,125

North Carolina	77	53,900	67	8,375			20	12,000	20	2,500	184	2,682	2,866	2,999
South Carolina	42	29,400	41	5,125			8	5,600	8	1,000	56	1,387	1,443	1,426
Georgia	90	40,500	61	9,760	3	1,290	22	9,900	48	8,400	142	1,871	2,013	2,485
Florida	52	24,700	31	3,565	1	650	10	4,750	8	920	38	1,064	1,102	1,318
South Atlantic	528	382,600	530	75,420	24	13,825	85	52,350	118	18,010	796	18,404	19,200	20,530
Kentucky	184	155,710	200	30,490	48	31,200	12	9,000	8	1,760	161	6,017	6,178	7,222
Tennessee	214	175,080	144	20,160	23	14,950	8	5,800	11	2,750	100	5,975	6,075	6,452
Alabama	147	77,175	48	7,200	2	800	12	5,400	18	3,150	83	2,276	2,359	2,666
Mississippi	191	114,600	68	10,200	8	3,760	12	6,480	15	2,400	68	2,871	2,939	3,368
Arkansas	111	68,330	47	8,225	2	940	21	10,290	20	4,200	114	2,261	2,375	2,896
Louisiana	113	67,800	34	4,760	12	4,200	15	7,050	15	2,700	147	2,287	2,434	3,365
Oklahoma	593	453,645	135	33,750	130	78,000	26	18,200	35	8,750	435	12,836	13,271	15,228
Texas	1,232	924,000	744	193,440	131	91,700	65	42,250	100	26,000	1,078	34,650	35,728	39,890
South Central	2,785	2,036,340	1,420	308,225	356	225,550	171	104,470	222	51,710	2,186	69,173	71,359	81,087
Montana	235	211,500	40	8,000	5	3,500	19	16,340	15	3,750	399	7,140	7,539	10,385
Idaho	127	114,300	30	5,400	5	3,250	12	9,000	18	2,880	114	3,891	4,005	4,699
Wyoming	185	150,895	30	9,530	12	7,200	12	9,900	3	990	278	5,261	5,539	7,333
Colorado	425	359,350	55	15,125	98	75,460	11	8,250	12	3,600	242	10,996	11,238	13,744
New Mexico	234	163,800	146	43,800	32	19,200	9	6,075	11	3,300	243	6,695	6,938	7,923
Arizona	185	125,740	74	19,980	16	9,200	10	6,520	8	2,000	238	5,206	5,444	6,214
Utah	87	81,550	28	5,600	6	4,200	10	8,500	5	1,000	162	2,998	3,160	3,120
Nevada	49	45,500	6	1,320	2	1,400	5	3,750	2	440	103	1,670	1,773	2,029
Washington	82	73,800	82	14,760	5	3,750	13	9,750	48	7,920	224	3,977	4,201	4,401
Oregon	123	119,310	53	10,600	1	700	17	13,260	38	5,700	196	5,778	5,974	6,225
California	509	477,460	352	83,430	233	186,400	15	13,200	30	6,300	471	16,632	17,103	15,961
Western	2,241	1,923,205	896	217,545	415	314,260	133	104,545	190	37,880	2,670	70,244	72,914	82,034
United States	15,440	13,298,590	9,045	1,542,090	4,167	2,744,000	800	601,265	1,090	207,548	15,409	473,762	489,171	533,431

Bureau of Agricultural Economics; preliminary estimates of Division of Crop and Livestock Estimates. The figures on income as shown in tables 461 and 462 are computed from the data shown in this table. The difference between gross income and value of production arises from the fact that in computing value of production allowance is made for changes in inventory numbers between the beginning and end of the year, while in computing income these changes are not used.

TABLE 328.—*Cattle and calves: Annual slaughter under Federal inspection, 1907–34, estimated equivalent of Federal inspection, 1900–1906, and estimated total slaughter (including farm) in United States, 1900–1934* [1]

Year	Cattle		Calves		Year	Cattle		Calves	
	Federally inspected	Total [2]	Federally inspected	Total [2]		Federally inspected	Total [2]	Federally inspected	Total [2]
	Thousands	*Thousands*	*Thousands*	*Thousands*		*Thousands*	*Thousands*	*Thousands*	*Thousands*
1900	5,801	10,242	------	------	1918	11,829	15,750	3,456	7,514
1901	6,312	11,088	------	------	1919	10,091	14,838	3,969	8,445
1902	6,465	11,697	------	------	1920	8,609	13,885	4,058	8,455
1903	6,755	12,463	------	------	1921	7,608	12,271	3,808	7,771
1904	6,702	12,099	------	------	1922	8,678	13,148	4,182	8,363
1905	7,259	12,649	------	------	1923	9,163	13,883	4,500	8,824
1906	7,541	12,944	------	------	1924	9,593	14,400	4,935	9,466
1907	7,633	13,287	2,024	6,211	1925	9,853	14,706	5,353	10,099
1908	7,279	12,852	1,958	6,048	1926	10,180	14,971	5,153	9,542
1909	7,714	13,611	2,189	6,516	1927	9,520	14,000	4,876	9,030
1910	7,808	13,541	2,238	6,553	1928	8,467	12,452	4,680	8,667
1911	7,619	12,958	2,184	6,264	1929	8,324	12,241	4,489	8,313
1912	7,253	11,979	2,278	6,348	1930	8,170	12,168	4,595	8,532
1913	6,978	11,478	1,902	5,285	1931	8,108	12,156	4,717	8,792
1914	6,757	11,004	1,697	4,661	1932	7,625	11,895	4,494	8,650
1915	7,153	10,822	1,819	4,640	1933	8,655	------	4,907	------
1916	8,310	12,027	2,367	5,774	1934	[3] 13,319	------	[3] 7,454	------
1917	10,350	13,724	3,143	7,031					

[1] Federal Meat Inspection Act effective Oct. 1, 1906.
[2] Subject to revision.

Bureau of Animal Industry and Bureau of Agricultural Economics.
Data for years 1880–99 last printed in 1933 Yearbook, table 316.

TABLE 329.—*Cattle and calves: Slaughter in specified countries, 1925–34*

Year	United States Federally inspected	Canada total	Argentina, including chilling, freezing, salting, and canned meat works [1]	Uruguay, excluding farm [2]	Australia total	New Zealand total [3]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	15,206	1,921	3,871	1,233	2,434	550
1926	15,333	1,902	3,510	1,293	2,160	519
1927	14,396	1,993	3,718	1,239	2,189	636
1928	13,147	1,949	3,258	1,271	2,200	806
1929	12,813	1,953	3,024	1,375	1,947	811
1930	12,765	1,904	2,987	1,285	1,787	894
1931	12,825	1,702	2,507	1,102	1,751	938
1932	12,117	1,669	2,381	916	[4]	1,019
1933	13,562	1,715	2,527	1,006	[4]	------
1934 [5]	20,651	[6]	------	------	[4]	------

[1] Including municipal and private slaughterhouses, the figures were as follows, in thousands: 1930, 5,966; 1931, 5,383; 1932, 5,344. The numbers killed in freezing and chilling plants alone were as follows, in thousands: 1930, 2,679; 1931, 2,296; 1932, 2,221; 1933, 2,342; 1934, 2,606.
[2] Slaughtering in freezing and chilling plants alone was as follows, in thousands: 1930, 786; 1931, 617; 1932, 497; 1933, 532; 1934, 569.
[3] For years beginning Apr. 1.
[4] Slaughter for export only was as follows, in thousands: 1930, 429; 1931, 425; 1932, 397; 1933, 527; 1934, 653.
[5] Preliminary estimates.
[6] Inspected slaughter, only, was as follows, in thousands: 1930, 978; 1931, 963; 1932, 937; 1933, 1,092; 1934, 1,347.

Bureau of Agricultural Economics; compiled from official sources and cabled reports from agricultural representatives abroad. Data for earlier years in 1928 Yearbook, table 364.

TABLE 330.—*Beef and beef products: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Argentina	1,552,601	93	1,115,653	112	1,054,298	30	1,020,678	35
Uruguay	287,281	0	195,823	0	204,101	0		
Australia [2]	284,476	1,711	214,821	4,765	252,998	498	238,255	273
Netherlands	237,540	159,721	148,062	130,890	55,047	72,345	38,051	58,530
United States [3]	144,303	84,233	100,891	29,433	89,748	30,373	95,020	49,736
New Zealand	115,286	626	105,358	434	117,398	487	167,436	399
Brazil	109,765	7,221	150,182	2,289	89,114	183	84,022	464
Canada	42,516	1,867	7,809	502	6,942	559	10,992	342
Denmark	27,793	12,359	77,568	10,583	35,301	9,078	33,206	7,015
Union of South Africa	23,193	8,397	22,240	13,317	16,292	3,338	23,478	6,591
Poland	17,646	2,032	21,520	1,049	4,433	994	2,852	738
Rumania	8,324	[4] 471	8,659	274	2,674	357		
Irish Free State	8,992	8,581	3,928	5,010	2,792	5,224	5,125	401
Austria	5,337	5,149	5,237	13,309	2,956	14,003	2,938	9,531
China	5,071	1,619	585	1,475	[5] 68	[5] 1,512	73	1,696
Hungary	4,834	207	4,408	31	3,123	17	1,774	9
Total	2,874,958	294,287	2,182,744	213,473	1,937,285	138,998	1,723,900	135,760
PRINCIPAL IMPORTING COUNTRIES								
United Kingdom	34,345	1,795,364	40,863	1,667,824	25,224	1,499,335	3,891	1,490,221
Germany	4,267	386,911	9,948	74,976	3,334	79,684	1,329	82,629
France	35,552	147,055	33,712	138,494	30,224	80,275	21,858	68,739
Belgium	37,959	122,165	14,909	103,985	6,685	52,233	4,480	50,604
Japan	0	68,201	0	74,426	0	47,904	0	23,666
Cuba	267	44,490	0	23,984	40	19,416		
Italy [6]	335	23,611	1,136	17,431	258	16,963	304	17,416
Sweden	8,759	19,664	6,190	16,981	5,177	14,237	5,011	17,203
Spain	55	16,785	25	19,422	28	24,683	33	31,509
Norway	1,880	14,365	1,574	10,904	4,537	4,168	2,862	3,364
British India	1,254	11,346	775	13,723	685	15,559	716	13,534
Philippine Islands	0	11,013	0	7,202	0	4,776		
Czechoslovakia	464	8,165	37	7,845	10	936	7	240
British Malaya	682	6,958	560	6,173	460	4,953	411	4,286
Switzerland	799	6,373	559	6,907	131	7,844	125	8,439
Finland	89	5,235	474	2,580	33	2,933	0	2,118
Egypt	11	4,767	7	2,277	19	1,851		2,077
Chile	125	3,645	109	2,471	133	199	163	
Total	126,843	2,696,113	110,878	2,197,605	76,978	1,877,949	41,190	1,816,045

[1] Preliminary.
[2] Year ended June 30.
[3] The import figures include "canned beef and veal" as taken from reports of the Bureau of Animal Industry.
[4] 4-year average.
[5] Does not include Manchuria after June 30, 1932.
[6] Includes only oleomargarine, tallow, and artificial butter. Meat imports into Italy are not separated as to kinds, although a large quantity of unclassified fresh and frozen meat is undoubtedly beef.

Bureau of Agricultural Economics, official sources.
This table includes fresh, pickled or salted, and canned beef, tallow, oleo oil, oleo stock, oleo stearin, and oleomargarine.

TABLE 331.—*Beef: Stocks in cold storage warehouses and meat-packing establishments, United States, 1925–34*

Kind and year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Beef, frozen:												
1925	114,034	111,947	101,599	87,684	67,271	46,887	36,452	26,970	22,879	19,755	27,008	50,436
1926	59,850	55,705	51,498	43,528	32,372	26,649	23,997	23,509	21,311	25,267	38,079	59,603
1927	72,352	67,431	60,659	50,945	39,712	28,719	23,261	18,552	17,241	19,456	26,696	45,567
1928	54,968	50,673	44,017	37,625	28,253	20,654	17,256	18,896	17,603	22,463	41,635	60,189
1929	77,051	72,117	67,486	60,664	51,442	39,878	35,759	31,085	32,122	38,996	51,902	70,390
1930	77,230	72,692	69,800	64,146	57,273	49,913	46,819	45,830	42,433	43,515	47,221	54,894
1931	55,649	52,130	47,334	41,509	34,082	31,195	28,842	25,211	24,061	20,861	20,871	25,364
1932	37,812	36,147	35,663	31,377	26,837	22,429	17,856	14,975	12,943	14,139	23,324	27,843
1933	29,279	26,521	23,475	21,541	19,606	18,954	23,164	27,972	33,160	35,261	41,816	50,706
1934[1]	58,377	51,960	44,481	36,259	27,866	24,256	26,988	40,363	62,798	75,580	89,387	105,092
Beef, cured and in process of cure:												
1925	28,930	28,758	29,210	28,634	28,952	27,731	25,102	22,704	22,335	20,964	20,473	23,128
1926	25,146	24,833	26,192	27,253	27,606	25,930	24,691	22,539	20,386	20,983	23,119	26,374
1927	28,521	27,823	27,361	26,214	23,216	21,694	20,495	17,170	16,205	16,422	17,220	19,778
1928	21,979	20,978	19,732	19,631	17,941	16,558	14,982	13,546	13,462	14,760	16,401	19,444
1929	21,862	21,873	21,285	20,943	19,272	17,437	16,296	14,845	15,892	17,438	20,157	23,054
1930	26,653	26,328	25,798	24,597	23,347	21,643	20,072	18,761	17,322	16,508	16,641	18,498
1931	19,636	20,268	20,288	19,602	19,068	18,253	16,706	15,844	14,989	14,310	13,536	13,794
1932	15,387	15,138	15,444	14,969	14,389	13,226	12,053	11,744	11,433	11,770	12,712	13,186
1933	13,591	13,029	12,540	12,240	11,052	11,584	11,972	13,851	15,286	15,937	17,417	19,304
1934[1]	20,855	20,988	20,264	19,589	18,724	18,290	18,483	21,182	17,277	16,995	19,012	22,861

[1] Stocks of meat from "drought-stricken livestock" purchased by Federal Surplus Relief Corporation are not included in these figures for year 1934.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments. Data for earlier years in 1928 Yearbook, table 365.

TABLE 332.—*Cattle-tick eradication: Progress and status of the work Dec. 1, 1934*

State	Quarantined counties on—		Released counties to Dec. 1, 1934			Released counties tick free on Nov. 1—				
	July 1, 1906	Dec. 1, 1934	Tick free	With 1 or more infested herds	Total counties released	1930	1931	1932	1933	1934
Alabama	67	0	67	0	67	64	67	67	66	67
Arkansas	75	0	63	12	75	53	55	60	64	63
California	15	0	15	0	15	15	15	15	15	15
Florida	67	11	48	8	56	33	41	46	44	48
Georgia	158	0	158	0	158	158	158	157	158	158
Kentucky	2	0	2	0	2	2	2	2	2	2
Louisiana	64	24	16	24	40	10	17	10	14	16
Mississippi	82	0	74	8	82	78	77	77	79	74
Missouri	4	0	4	0	4	4	4	4	4	4
North Carolina	73	0	73	0	73	70	73	73	73	73
Oklahoma	61	0	61	0	61	61	61	61	60	61
South Carolina	46	0	46	0	46	46	46	46	46	46
Tennessee	42	0	42	0	42	42	42	42	42	42
Texas	198	36	130	32	162	116	113	126	135	130
Virginia	31	0	31	0	31	31	30	31	31	31
Total	985	71	830	84	914	783	801	817	833	830

Bureau of Animal Industry.

TABLE 333.—*Hogs, including pigs: Number on farms and farm value per head, by States, Jan. 1, 1932–35*

State and division	Number				Farm value per head [1]			
	1932	1933	1934	1935 [2]	1932	1933	1934	1935
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Maine	53	55	53	48	9.30	7.00	6.40	8.60
New Hampshire	15	16	14	13	9.90	7.60	7.10	9.00
Vermont	32	34	29	26	7.70	5.80	6.00	8.20
Massachusetts	99	84	86	80	8.90	6.30	6.30	8.60
Rhode Island	5	5	5	4	8.00	6.80	7.40	9.80
Connecticut	25	25	22	21	9.20	6.60	6.80	9.80
New York	205	213	204	173	8.70	6.40	6.60	8.40
New Jersey	78	75	66	63	10.70	6.70	7.30	10.10
Pennsylvania	655	707	665	565	8.70	6.00	6.10	8.00
North Atlantic	1,167	1,214	1,144	993	8.85	6.20	6.33	8.35
Ohio	2,072	2,601	2,393	1,651	6.60	4.40	4.00	6.50
Indiana	2,953	3,691	3,802	2,357	6.80	4.50	3.60	6.00
Illinois	4,960	5,537	5,260	3,209	6.80	4.60	4.30	8.00
Michigan	661	793	730	518	6.90	4.70	4.10	6.40
Wisconsin	1,658	1,611	1,514	1,151	5.80	4.20	4.40	7.60
East North Central	12,244	14,233	13,699	8,886	6.63	4.52	4.05	7.02
Minnesota	3,884	3,496	3,321	2,026	6.40	4.50	4.40	7.50
Iowa	11,140	10,813	10,813	6,272	6.40	4.50	4.70	8.00
Missouri	4,100	4,674	4,113	2,303	5.60	3.80	3.50	4.60
North Dakota	751	638	434	269	5.50	3.60	3.60	5.40
South Dakota	1,950	2,048	1,229	676	5.50	4.00	4.10	5.50
Nebraska	5,334	4,534	4,715	2,169	6.00	4.30	4.40	6.20
Kansas	3,109	3,264	2,611	1,410	5.40	3.80	3.60	5.50
West North Central	30,268	29,467	27,236	15,125	6.04	4.21	4.30	6.75
North Central	42,512	43,700	40,935	24,011	6.21	4.31	4.22	6.85
Delaware	22	22	23	22	8.50	5.10	5.00	7.00
Maryland	160	176	181	147	7.50	4.90	4.70	6.40
Virginia	551	579	562	506	6.10	4.50	4.40	6.10
West Virginia	176	211	207	207	7.50	5.20	4.70	5.80
North Carolina	905	996	936	842	7.70	5.10	5.50	7.40
South Carolina	540	562	478	449	5.70	4.70	5.00	5.70
Georgia	1,390	1,376	1,362	1,158	5.00	3.40	3.60	4.80
Florida	508	513	477	405	3.60	2.70	3.20	3.50
South Atlantic	4,252	4,435	4,226	3,736	5.84	4.14	4.35	5.67
Kentucky	923	1,101	1,079	831	5.90	4.00	3.50	5.70
Tennessee	1,075	1,236	1,137	966	6.30	4.00	3.70	5.60
Alabama	957	1,053	948	844	5.40	4.20	4.10	5.70
Mississippi	878	1,010	990	881	5.30	3.50	3.50	4.90
Arkansas	909	1,100	990	742	5.20	3.50	3.20	3.90
Louisiana	679	672	632	569	6.50	4.10	3.90	4.90
Oklahoma	1,205	1,506	1,024	645	5.00	3.00	2.60	3.80
Texas	1,767	2,033	1,830	1,226	5.40	3.40	3.40	5.00
South Central	8,393	9,711	8,630	6,704	5.58	3.66	3.47	5.00
Montana	252	227	227	145	5.10	4.50	4.20	6.20
Idaho	324	333	300	210	5.00	3.40	3.20	5.80
Wyoming	123	98	87	57	5.40	3.40	3.40	4.60
Colorado	624	536	440	273	5.30	3.10	3.40	5.20
New Mexico	74	78	58	34	5.70	3.90	3.60	4.80
Arizona	23	24	18	12	5.90	4.10	4.70	6.20
Utah	85	76	68	51	5.10	3.90	4.10	5.40
Nevada	21	19	17	13	6.70	4.60	4.50	6.20
Washington	220	220	202	152	6.80	4.50	4.20	7.60
Oregon	246	221	190	152	6.50	4.30	4.30	6.80
California	672	706	635	464	6.50	4.30	4.30	6.90
Western	2,604	2,538	2,242	1,563	5.80	3.88	3.90	6.25
United States	58,988	61,598	57,177	37,007	6.13	4.22	4.14	6.41

[1] Sum of total value of subgroups (classified by age and sex), divided by total number and rounded to nearest dime for States. Division and United States averages not rounded. State figures are new weighted value series, not comparable to State figures previously published for the years prior to 1925.

[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 334.—*Hogs: Number on farms and farm value per head in the United States Jan. 1, 1900–1935*

Year	Number [1]	Farm value per head Jan. 1 [2]	Year	Number [1]	Farm value per head Jan. 1 [2]	Year	Number [1]	Farm value per head Jan. 1 [2]
	Thousands	*Dollars*		*Thousands*	*Dollars*		*Thousands*	*Dollars*
1900 [3]	*62,868*		1912	55,700	8.46	*1925* [3]	*50,854*	
1900	52,600	5.28	1913	54,000	10.42	1925	55,770	13.15
1901	53,200	6.55	1914	51,800	10.99	1926	52,085	15.66
1902	46,800	7.43	1915	57,000	10.43	1927	55,468	17.19
1903	47,200	8.22	1916	59,700	8.88	1928	61,772	13.17
1904	49,500	6.50	1917	56,700	12.42	1929	58,789	12.94
1905	52,000	6.33	1918	61,200	20.65	*1930* [3]	*56,288*	
1906	54,600	6.53	1919	63,800	23.28	1930	55,301	13.46
1907	57,300	8.05	*1920* [3]	*59,346*		1931	54,399	11.36
1908	61,300	6.39	1920	60,159	20.00	1932	58,988	6.13
1909	57,000	6.92	1921	58,942	13.63	1933	61,598	4.22
1910 [3]	*58,186*		1922	59,849	10.58	1934	57,177	4.14
1910	49,300	9.69	1923	69,304	12.29	1935 [4]	37,007	6.41
1911	55,700	9.90	1924	66,576	10.30			

[1] Figures for 1900–1919 are tentative revised estimates of the Bureau of Agricultural Economics.
[2] Data for 1900–1925 are an old series for all hogs as reported, adjusted on basis average relationship between the new and the old series for 1926–28. Old series was shown in 1928 Yearbook. Conversion factor was 1.057 (base was old series). Data for 1926–35 are a new series, referred to above, of average values by age and sex classification weighted by numbers in each class.
[3] Italic figures are from the census. Census dates were June 1, 1900; Apr. 15, 1910; Jan. 1, 1920, and 1925; Apr. 1, 1930. 1900, 1910, and 1930 include spring-born pigs.
[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 335.—*Hogs: Numbers in countries having 150,000 and over, averages 1921–25 and 1926–30, annual 1930–33*

Country	Date or month of estimates	Average		1930	1931	1932	1933
		1921–25 [1]	1926–30 [1]				
NORTH AND CENTRAL AMERICA AND WEST INDIES		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
United States	January 1	62,088	56,683	55,301	54,399	58,988	[2] 61,598
Canada	June	4,344	4,387	4,000	4,717	4,639	3,801
Mexico	do	[3] 1,125	3,300	[4] 3,698			
Honduras		(200)	298	298			
Salvador		(330)	335	[4] 335			
Cuba		(591)	591	591			
Dominican Republic	May	866	1,100	1,100			
Haiti		(170)	203	240	260	250	350
Estimated total [5]		70,300	67,600				
SOUTH AMERICA							
Colombia		1,352	1,400	1,434		1,600	
Venezuela		512	(512)				
Ecuador		150	153		200		
Peru	February–April	429	[4] 689	[6] 689			
Bolivia		362	375	390	398		
Chile		255	[4] 331	[4] 331			
Brazil	September	[4] [7] 16,169	(22,099)		22,099	21,615	
Uruguay		278	[4] 308	[4] 308			
Argentina	January 1 [8]	[4] 1,437	[4] [9] 3,769	[4] [9] 3,769			
Estimated total [5]		21,000	29,800				
EUROPE							
England and Wales	June	2,658	2,508	2,310	2,783	3,185	3,069
Scotland	do	167	165	143	162	165	167
Northern Ireland	do	134	206	216	236	220	271
Irish Free State	do	947	1,048	1,052	1,227	1,108	931
Norway [10]	do	216	303	339	317	304	319
Sweden	September or October.	[9] 1,056	1,574	1,761	1,724	1,462	1,713
Denmark	July	2,314	3,741	4,872	5,453	[11] 4,886	4,407
Netherlands	May–June	1,519	2,018	2,018	[12] 2,434	[12] 2,244	[13] 2,112
Belgium	January 1 [8]	1,081	1,159	1,237	1,250	1,235	1,246
France	do. [8]	5,302	5,942	6,102	6,329	6,398	6,488
Spain	do. [8]	4,500	5,024			5,102	
Portugal		1,041	[4] 1,163	[6] 1,163			
Italy	May–April	2,630	3,086	[4] 3,322			
Switzerland	April	[4] 640	782	(926)	[4] 926		[4] 897
Germany	January 1 [8]	15,776	19,715	19,944	23,442	23,808	[14] 22,859
Austria	do. [8]	1,399	1,965	[4] [9] 1,965			
Czechoslovakia	do. [8]	2,201	2,814	[4] [15] 3,088	2,776	2,576	[16] 2,621

See footnotes at end of table.

TABLE 335.—*Hogs: Numbers in countries having 150,000 and over, averages 1921–25 and 1926–30, annual 1930–33*—Continued

Country	Date or month of estimates	Average 1921–25 [1]	Average 1926–30 [1]	1930	1931	1932	1933
EUROPE—continued		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Hungary	April-July	2,424	2,503	2,362	2,715	2,361	1,899
Yugoslavia	January 1	2,819	2,743	(2,675)	2,924	3,133	2,863
Greece	January 1 [8]	390	422	[4] 276	335	423	472
Bulgaria	do.[8]	832	1,002	[6] 1,002			
Rumania	do.[8]	2,976	2,915	2,412	[12] 2,437	3,221	2,964
Poland	June	[17] 5,287	5,736	6,047	7,321	5,844	5,753
Lithuania	January 1 [9]	1,486	1,189	944	1,207	1,338	1,233
Latvia	June	465	499	523	712	582	586
Estonia	July	299	317	290	323	303	277
Finland	September	378	404	395	446	414	
Union of Soviet Socialist Republics	Summer	17,680	21,040	13,600	14,400	11,600	12,068
Estimated total excluding Union of Soviet Socialist Republics [5]		61,000	71,100				
AFRICA							
French West Africa [18]		151	210	180	177		
Angola	April	266	285	272	287		
Union of South Africa	August	888	888	963			
Madagascar	February	369	375	415	479	491	
Estimated total [5]		2,300	2,500				
ASIA							
India (Portuguese)		(250)	250	[6] 250			
China (including Turkistan, Manchuria, and Inner Mongolia)		[19] 70,600	(80,000)				[20] 95,000
Japan	January 1 [8]	590	688	706	742	947	926
Chosen	do.[8]	1,078	1,244	1,328	1,387	1,348	1,339
Taiwan	do.[8]	1,302	1,619	1,754	1,750	1,739	1,754
French Indo-China		2,767	2,587	2,808	2,925	2,989	
Siam	March	864	(864)				
Federated Malay States		59	96	166	190		
Straits Settlements		220	132	120	105		
Philippine Islands	January 1 [9]	2,039	2,236	2,454	2,775	2,491	
Netherlands Indies: Outer possessions	do.[8]	783	842				995
Estimated total excluding Union of Soviet Socialist Republics.[5]		81,100	91,000				
OCEANIA							
Australia	January 1 [8]	918	985	1,018	1,072	1,168	1,162
New Zealand	January 1	396	525	488	476	513	592
Estimated total [5]		1,400	1,600				
Total countries reporting all periods: To 1933 (29) [21]		138,083	144,891	137,046	145,310	145,988	145,840
Estimated world total including Union of Soviet Socialist Republics [5] [22]		254,800	284,600				

[1] Average for 5-year period if available, otherwise for any year or years within that period unless otherwise stated. [2] Number on Jan. 1, 1934, was 57,177,000 head. [3] Incomplete. [4] Census.

[5] These totals include interpolations for a few countries not reporting each year and rough estimates for some others. [6] Year 1929 or nearest year. [7] Year 1920.

[8] Estimates of countries reporting as of December are considered as of Jan. 1, of following year, i.e., the figures for the number of hogs in France as of Dec. 31, 1929, have been placed in 1930 column, etc.

[9] June. [10] Rural communities only. [11] June 20. [12] Unofficial. [13] Apr. 18.

[14] Number on Jan. 1, 1934, was 23,890,000 head.

[15] May.

[16] Number on Jan. 1, 1934, was 3,421,000 head.

[17] November.

[18] Includes French Sudan.

[19] Estimate based on official figures for 1920 for 20 Provinces which supported over 50 percent of the number in China in 1914.

[20] Estimate based on official figures for 1932 or 1933 for 22 Provinces which supported over 99 percent of the number in China in 1914. The official estimate excluding Turkistan and Inner Mongolia in 1932 or 1933 was 94,395,000. Estimates for this territory and for Manchuria included with China in this table.

[21] Comparable totals for number of countries indicated in parenthesis.

[22] Estimated world production for the 5 years 1909–13 was as follows (in thousands of head): North America, Central America, and West Indies, 59,700; South America, 23,500; Europe, excluding Union of Soviet Socialist Republics, 71,800; Africa, 2,500; Asia, excluding Union of Soviet Socialist Republics, 86,200; Oceania, 1,400; world including Union of Soviet Socialist Republics, 266,000.

Bureau of Agricultural Economics; official estimates and International Institute of Agriculture unless otherwise stated.

Figures in parenthesis interpolated. For later figures see the monthly issues of Hog and Pork Prospects and the hog and pork issue of Foreign Crops and Markets.

TABLE 336.—*Hogs: Receipts at principal public stockyards and at public stockyards, 1925–34*

Year	Chicago	Denver	East St. Louis	Fort Worth	Kansas City	Omaha	South St. Joseph	South St. Paul	Sioux City	Total 9 markets [1]	All other stockyards reporting	Total all stockyards reporting [1]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	7,996	467	3,512	312	2,067	3,355	1,673	3,637	3,396	26,415	17,514	43,929
1926	7,093	497	3,536	217	2,036	2,647	1,462	3,451	2,475	23,413	16,359	39,772
1927	7,724	457	3,710	338	1,904	2,631	1,425	3,105	2,322	23,616	17,795	41,411
1928	8,539	567	4,036	432	2,391	3,179	1,724	2,902	2,754	26,525	20,002	46,527
1929	8,193	539	3,865	402	2,476	3,166	1,627	2,869	2,313	25,450	18,647	44,097
1930	7,870	512	3,459	279	2,015	3,363	1,446	2,759	2,317	24,021	16,753	40,774
1931	7,942	597	2,970	216	1,337	3,525	1,322	3,251	2,646	23,805	15,733	39,588
1932	6,602	652	2,626	255	1,356	3,078	1,226	2,600	1,955	20,351	14,677	35,028
1933 [2]	7,792	771	3,328	498	2,077	2,950	1,715	2,742	2,287	24,160	16,217	40,377
1934	6,510	709	2,960	404	1,262	2,808	1,594	1,885	2,067	20,199	13,521	33,720

[1] Rounded totals of complete figures.
[2] Includes many pigs and sows received for sale on Government account, Aug. 22–Oct. 7, 1933.

Bureau of Agricultural Economics; compiled from data of the livestock and meat reporting service of the Bureau.
Receipts for 1900–1924 are available in 1924 Yearbook, table 500.

TABLE 337.—*Hogs: Receipts at United States public stockyards, 1925–34*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	6,105	4,558	3,528	3,247	3,283	3,507	2,798	2,549	2,741	3,390	3,843	4,380	43,929
1926	4,304	3,372	3,579	3,135	3,037	3,143	2,854	2,804	2,819	3,261	3,554	3,910	39,772
1927	4,252	3,308	3,754	3,142	3,613	3,775	3,046	3,042	2,565	3,039	3,666	4,209	41,411
1928	5,306	5,267	4,639	3,483	3,723	3,548	2,924	2,523	2,600	3,666	4,075	4,773	46,527
1929	5,133	4,000	3,436	3,582	3,431	3,275	3,297	2,964	3,089	3,701	3,933	4,256	44,097
1930	4,720	3,781	3,294	3,255	3,293	3,215	2,918	2,617	2,799	3,441	3,439	4,002	40,774
1931	4,652	3,704	3,207	3,067	2,938	2,854	2,511	2,454	2,727	3,462	3,752	4,210	39,538
1932	4,218	3,659	2,939	2,960	3,050	2,545	2,159	2,405	2,505	2,691	2,775	3,123	35,028
1933 [1]	3,388	2,700	2,638	2,798	3,143	3,361	2,871	3,924	6,494	2,521	3,207	3,332	40,377
1934	4,245	2,728	2,468	2,674	3,076	2,684	2,519	2,067	2,094	2,807	3,218	3,140	33,720

[1] Includes many pigs and sows received for sale on Government account, Aug. 22–Oct. 7, 1933.

Bureau of Agricultural Economics; compiled from data of the livestock and meat reporting service of the Bureau. Earlier data in 1930 Yearbook, table 376.

TABLE 338.—*Hogs: Monthly average live weight at Chicago, 1925–26 to 1934–35*

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Average, Oct.–Mar. [1]	Apr.	May	June	July	Aug.	Sept.	Average, Apr.–Sept. [1]
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1925–26	242	228	225	231	235	245	234	244	247	255	271	281	267	261
1926–27	232	217	220	226	229	240	227	239	243	248	257	265	261	252
1927–28	235	215	217	225	230	235	226	233	234	239	251	257	251	244
1928–29	247	238	231	228	228	238	235	241	239	247	257	265	259	251
1929–30	242	223	224	228	231	235	230	234	238	245	257	255	244	246
1930–31	227	221	226	235	237	242	231	240	240	251	258	256	240	248
1931–32	222	217	223	230	233	237	227	238	239	245	260	263	260	251
1932–33	241	231	229	233	236	246	236	251	250	253	257	258	251	253
1933–34	239	231	227	227	227	235	231	231	231	238	248	250	245	240
1934–35	228	215	212											

[1] Simple average.

Bureau of Agricultural Economics; livestock and meat reporting service.
Weighted average of packer and shipper purchases. Data for 1900–1923 are available in 1924 Yearbook, table 506, and for 1924 in 1934 Yearbook, table 336.

TABLE 339.—*Hogs: Average price per 100 pounds received by producers, United States, 1925–26 to 1934–35*

Year	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	11.16	10.66	10.51	10.99	11.76	11.65	11.49	11.97	12.80	12.69	11.66	12.07	11.55
1926–27	12.06	11.45	10.97	10.97	11.19	10.89	10.41	9.41	8.40	8.58	9.24	9.78	10.28
1927–28	10.16	8.99	8.14	7.80	7.61	7.48	7.75	8.82	8.70	9.64	10.01	11.17	8.59
1928–29	9.55	8.51	7.95	8.18	8.88	10.00	10.20	9.96	9.80	10.33	10.28	9.53	9.28
1929–30	9.10	8.54	8.53	8.80	9.48	9.57	9.17	8.99	9.10	8.38	8.51	9.44	8.95
1930–31	8.79	8.20	7.44	7.25	6.81	6.92	6.92	6.35	5.70	6.20	6.25	5.44	6.95
1931–32	4.70	4.36	3.76	3.76	3.53	3.90	3.58	2.96	2.82	4.23	4.06	3.78	3.78
1932–33	3.25	3.05	2.73	2.68	2.94	3.22	3.21	3.88	3.96	3.98	3.79	3.73	3.36
1933–34	4.17	3.70	2.92	3.06	3.87	3.88	3.49	3.17	3.52	3.97	4.61	6.04	3.73
1934–35	5.20	5.04	5.15										

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of hogs Jan. 1, to obtain price for the United States; yearly price obtained by weighting monthly prices by Federally-inspected slaughter. Data for earlier years in 1928 Yearbook, table 382. Only monthly prices are comparable.

TABLE 340.—*Hogs: Average price per 100 pounds at Chicago, by months, 1925–26 to 1934–35*

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Simple average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	11.31	11.28	10.97	12.02	12.45	12.20	12.33	13.55	14.01	12.51	11.48	12.03	12.18
1926–27	12.72	11.80	11.57	11.96	11.73	11.28	10.69	9.59	8.78	9.05	9.03	10.22	10.70
1927–28	10.39	8.92	8.32	8.25	8.08	8.08	9.28	9.67	9.91	10.65	11.53	11.89	9.58
1928–29	9.57	8.83	8.61	9.22	10.19	11.44	11.41	10.81	10.72	11.20	10.52	9.85	10.20
1929–30	9.38	9.06	9.34	9.78	10.67	10.17	10.00	10.02	9.52	8.73	9.58	9.76	9.67
1930–31	9.34	8.55	7.92	7.65	7.06	7.46	7.26	6.53	6.36	6.33	5.98	5.41	7.15
1931–32	5.09	4.61	4.20	4.00	3.89	4.33	3.85	3.34	3.62	4.58	4.21	4.00	4.14
1932–33	3.50	3.34	3.04	3.12	3.46	3.88	3.77	4.51	4.49	4.41	3.97	4.24	3.81
1933–34	4.43	4.04	3.25	3.41	4.39	4.31	3.85	3.51	4.09	4.49	5.89	6.82	4.37
1934–35	5.60	5.66	5.89										

Bureau of Agricultural Economics. Compiled from reports of packer and shipper purchases; such purchases do not include pigs, boars, stags, extremely rough sows, or cripples. The yearly figures are the simple average of the October to September prices. These weighted prices do not include processing tax. Tax of 50 cents per 100 pounds was imposed from Nov. 5 to Nov. 30, 1933; $1 from Dec. 1, 1933, to Jan. 31, 1934; $1.50 from Feb. 1 to Feb. 28; and $2.25 beginning Mar. 1, 1934.

Data for 1901–24 are available in 1932 Yearbook, table 336.

TABLE 341.—*Hogs: Annual slaughter under Federal inspection, 1907–34, estimated equivalent of Federal inspection, 1900–1906, and estimated total slaughter (including farm) in United States, 1900–1934* [1]

Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]
	Thousands	*Thousands*		*Thousands*	*Thousands*		*Thousands*	*Thousands*
1900	29,294	50,470	1912	33,053	55,564	1924	52,873	79,631
1901	31,129	51,870	1913	34,199	57,046	1925	43,043	68,294
1902	26,375	48,260	1914	32,532	55,501	1926	40,636	65,779
1903	26,971	47,900	1915	38,381	62,017	1927	43,633	69,250
1904	30,072	49,987	1916	43,084	67,613	1928	49,795	76,593
1905	31,855	51,540	1917	33,910	56,901	1929	48,445	74,945
1906	31,610	52,680	1918	41,214	64,796	1930	44,266	70,390
1907	32,885	54,058	1919	41,812	65,190	1931	44,772	71,157
1908	38,643	60,515	1920	38,019	61,890	1932	45,245	74,021
1909	31,395	53,220	1921	38,982	62,957	1933	47,226	
1910	26,014	47,076	1922	43,114	68,105	1934	43,873	
1911	34,133	56,646	1923	53,334	79,843			

[1] Federal Meat Inspection Act, effective Oct. 1, 1906.
[2] Subject to revision.

Bureau of Animal Industry and Bureau of Agricultural Economics.
Data for years 1880–99 last printed in 1933 Yearbook, table 330.

TABLE 342.—*Hogs: Shipments, slaughter, value of production, and income, by States, 1933*

State and division	Shipments and local slaughter		A. A. A. purchases[1]		Inshipments, stocker, feeding, and breeding		Farm slaughter		Value of amount consumed on farms	Receipts from sales	Gross income	Value of production
	Head	Total weight	Head	Total weight	Head	Total weight	Head	Total weight				
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	24	6,240					27	7,290	176	517	693	615
N. H	8	2,080					8	2,160	43	149	192	164
Vt	16	4,160					27	7,020	143	392	535	459
Mass	56	14,560			4	400	35	9,100	196	857	1,053	915
R. I	1	250					5	1,250	31	51	82	79
Conn	8	2,080					23	5,980	151	282	433	370
N. Y	78	17,940	2	104	4	400	160	38,080	900	1,714	2,614	2,343
N. J	57	11,950	2	85	18	2,250	40	10,000	293	682	975	888
Pa	262	60,260	1	84			360	90,000	2,683	4,407	7,090	6,503
N. Atl	510	119,520	5	273	26	3,050	685	170,880	4,616	9,051	13,667	12,336
Ohio	3,701	851,230	406	25,327	2	220	600	150,000	5,155	36,533	41,688	40,748
Ind	4,867	1,143,745	357	25,373	11	1,320	530	132,500	4,806	46,804	51,610	51,793
Ill	6,581	1,605,764	577	46,592	51	5,865	650	162,500	5,411	63,003	68,414	65,862
Mich	670	137,350	77	5,254	16	1,600	310	74,400	1,814	6,716	8,530	7,944
Wis	1,729	380,380	168	12,207	1	100	490	110,250	3,043	14,952	17,995	16,668
E. N. Cent	17,548	4,118,469	1,585	114,753	81	9,105	2,580	629,650	20,229	168,008	188,237	183,015
Minn	4,522	1,017,450	469	32,774	329	36,190	430	94,600	2,725	35,132	37,857	36,450
Iowa	11,874	2,790,390	616	59,475	230	26,450	625	153,125	4,952	94,514	99,466	99,612
Mo	5,085	1,154,295	786	50,357	38	4,180	650	162,500	5,250	45,066	50,316	48,022
N. Dak	587	135,010	239	13,766			233	55,920	1,451	5,049	6,500	5,442
S. Dak	2,613	454,662	808	47,098	4	460	220	51,700	1,548	17,888	19,436	15,022
Nebr	5,265	1,316,250	473	38,700	111	11,100	340	86,700	2,733	44,822	47,555	46,471
Kans	3,200	704,000	699	43,255	57	6,555	400	100,000	3,162	27,006	30,168	26,810
W. N. Cent	33,146	7,572,057	4,089	285,425	769	84,935	2,898	704,545	21,821	269,477	291,298	277,829
N. Cent	50,694	11,690,526	5,674	400,178	850	94,040	5,478	1,334,195	42,050	437,485	479,535	460,844
Del	4	760					19	3,800	108	125	233	220
Md	55	9,625	5	261			155	37,200	1,311	840	2,151	2,110
Va	167	36,740	20	1,094	2	200	575	143,750	4,713	2,781	7,494	7,220
W. Va	38	5,700	8	477	2	200	210	52,500	1,825	908	2,733	2,548
N. C	186	37,200	4	248			715	157,300	5,817	2,970	8,787	8,167
S. C	129	24,720	3	141			400	84,000	3,119	1,245	4,364	3,938
Ga	288	43,200	11	579			1,030	221,450	6,377	2,343	8,720	8,478
Fla	179	26,850	6	344			300	42,000	806	1,580	2,386	2,129
S. Atl	1,046	184,795	57	3,144	4	400	3,404	742,000	24,076	12,792	36,868	34,810
Ky	625	115,625	58	3,824	7	525	650	162,500	5,372	5,686	11,058	10,581
Tenn	527	105,400	26	1,487	2	250	650	169,000	5,087	4,866	9,953	9,291
Ala	218	34,880	4	214	1	150	600	120,000	3,354	1,853	5,207	4,591
Miss	153	22,950	2	91	3	420	620	124,000	3,203	1,624	4,827	4,633
Ark	354	53,100	32	1,700	1	100	575	115,000	2,781	2,489	5,270	4,785
La	157	23,550	(.123)	7	2	300	420	67,200	1,959	1,432	3,391	3,057
Okla	1,058	201,020	374	21,418	8	800	415	103,750	3,072	8,101	11,173	9,072
Tex	851	187,220	92	5,258	6	600	1,018	264,680	7,570	7,776	15,346	13,683
S. Cent	3,943	743,745	588	33,999	30	3,145	4,948	1,126,130	32,398	33,827	66,225	59,693
Mont	169	32,110	7	472			110	24,200	625	1,381	2,006	1,940
Idaho	285	54,150	4	292			75	17,625	561	2,141	2,702	2,492
Wyo	43	8,170	7	438	8	800	35	8,050	202	301	503	422
Colo	509	117,070	41	2,658	24	2,400	88	21,120	579	4,061	4,660	4,167
N. Mex	47	9,400	2	128			32	6,400	183	382	565	472
Ariz	25	5,000	6	369			10	1,900	52	279	331	285
Utah	45	6,750	1	75	2	200	36	7,200	205	331	536	480
Nev	7	1,190	(.089)	7			9	1,800	64	68	132	122
Wash	180	37,800	4	305	12	1,200	125	27,500	632	2,147	2,779	2,543
Oreg	184	34,960	2	147	11	1,100	103	21,630	517	1,832	2,349	1,927
Calif	644	119,490	14	1,005	4	400	75	15,000	454	5,292	5,746	5,249
West	2,138	426,090	88	5,896	61	6,100	698	152,425	4,074	18,235	22,309	20,099
U. S	58,331	13,164,676	6,411	443,490	971	106,735	15,213	3,525,630	107,214	511,390	618,604	587,782

[1] Purchases under the Agricultural Adjustment Administration.

Bureau of Agricultural Economics; preliminary estimates of Division of Crop and Livestock Estimates. The figures on income as shown in tables 461 and 462 are computed from the data shown in this table. The difference between gross income and value of production arises from the fact that in computing value of production, allowance is made for changes in inventory numbers at the beginning and end of the year, while in computing income these changes are not used.

TABLE 343.—*Hogs: Cholera-control work by Bureau of Animal Industry, 1919–34*

Year ended June 30	Bureau veterinarians engaged in work [1]	Premises investigated	Demonstrations		Post-mortem examinations	Outbreaks reported to Bureau veterinarians
			Number	Hogs treated		
1919	180	93,512	----------	233,987	53,586	12,336
1920	140	46,145	3,037	347,702	10,963	9,788
1921	54	29,433	3,420	67,295	3,888	7,951
1922	80	47,137	4,343	88,846	5,390	7,920
1923	71	52,348	5,234	108,562	5,247	7,204
1924	45	29,443	3,178	78,007	3,686	7,225
1925	34	24,060	2,353	51,331	2,383	3,437
1926	35	20,599	2,579	69,230	2,446	4,558
1927	37	25,004	4,863	97,917	3,741	11,555
1928	39	25,156	4,444	106,960	3,368	6,941
1929	38	28,939	2,648	56,023	3,326	7,029
1930	37	26,858	1,740	35,158	2,505	4,162
1931	36	23,226	1,460	29,152	3,011	3,388
1932	35	24,792	2,066	36,552	3,722	6,480
1933	32	28,897	1,829	37,523	3,226	4,358
1934	30	25,492	1,490	29,585	2,398	4,123

[1] Small portion of time occasionally devoted to other work.

Bureau of Animal Industry.

TABLE 344.—*Hogs: Slaughter in specified countries, 1925–34*

Year	United States Federally inspected	Canada, total	Germany, inspected slaughter	Denmark, in export slaughter-houses	England and Wales sold off farms for slaughter [1]	Ireland, purchased by bacon curers	Netherlands, slaughter for consumption and export
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	43,043	5,720	12,090	3,766	3,832	915	2,810
1926	40,636	5,636	13,072	3,833	3,326	914	2,440
1927	43,633	5,965	17,279	5,098	3,968	1,064	3,041
1928	49,795	5,880	19,480	5,373	4,378	1,272	3,077
1929	48,445	5,747	17,252	4,994	3,481	1,146	2,415
1930	44,266	5,248	18,041	6,132	3,477	1,034	2,746
1931	44,772	6,187	20,520	7,320	4,152	1,091	3,660
1932	45,245	6,286	19,002	7,841	4,681	1,115	3,559
1933	47,226	5,814	18,260	6,392	----------	1,221	2,796
1934 [2]	43,586	([3])	19,414	4,898	([4])	([4])	----------

[1] Years beginning June 1. Revised estimates on basis of returns published in The Agricultural Output of England and Wales 1930–31, published in 1934.

[2] Preliminary estimates.

[3] Inspected slaughter alone was as follows in thousands: 1933, 2,802; 1934, 2,872.

[4] Revised estimate of slaughter in the United Kingdom and Irish Free State for year beginning June 1 was as follows: 1925, 4,919; 1926, 4,576; 1927, 5,825; 1928, 6,457; 1929, 4,983; 1930, 4,957; 1931, 6,023; 1932, 6,432; 1933, 6,035 (see note 1).

Bureau of Agricultural Economics; compiled from official sources and cabled reports from agricultural representatives abroad.

For earlier years see 1931 Yearbook, table 387.

TABLE 345.—*Lard, American: Average price per pound at Liverpool, 1925–34*

PRIME WESTERN STEAM [1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	18.0	[2] 17.5	18.7	17.8	17.6	19.1	19.3	19.2	19.2	17.9	17.8	16.6	18.2
1926	17.2	16.5	16.5	16.0	[2] 17.6	18.4	17.8	17.0	16.6	15.8	14.2	14.3	16.5
1927	14.3	14.4	14.4	14.3	14.1	14.4	14.3	13.8	14.6	14.4	14.0	13.5	14.2
1928	13.6	12.9	13.0	13.3	13.4	13.3	13.7	13.9	14.4	13.9	13.4	13.2	13.5
1929	13.4	13.5	13.9	13.5	13.4	13.5	13.9	13.8	13.5	12.7	12.1	11.8	13.2
1930	11.9	12.2	11.8	11.8	11.8	11.3	11.2	12.3	13.2	13.2	12.5	11.3	12.0
1931	[3] 10.6	9.8	10.5	10.3	9.5	10.0	9.5	8.8	8.7	9.0	8.2	7.3	9.3
1932	6.7	6.5	6.7	6.3	5.8	5.6	6.9	7.0	7.0	6.1	[3] 7.6	6.4	6.6
1933	[3] 6.0	5.8	6.2	6.4	8.2	8.2	8.7	7.7	7.5	7.4	7.5	6.4	7.2
1934	6.3	6.8	6.7	5.7	5.3	5.5	5.7	7.7	9.7	9.3	10.2	11.4	7.5

REFINED [4]

1931							9.5	8.9	8.9	9.4	8.4	8.1	
1932	7.0	6.9	6.9	6.5	6.2	6.1	7.2	7.5	7.6	7.2	7.3	6.8	6.9
1933	6.7	5.9	6.3	6.5	8.2	8.2	8.8	7.8	7.6	7.5	7.6	6.7	7.3
1934	6.4	7.0	7.0	6.0	5.5	5.7	5.8	7.6	9.5	9.2	10.4	11.2	7.6

[1] Average price in tierces.
[2] 2 quotations only.
[3] 1 quotation only.
[4] Average price in boxes.

Bureau of Agricultural Economics. Compiled as follows: Prime western steam, Manchester Guardian, averages of Friday quotations; refined, monthly reports of H. E. Reed, foreign agricultural representative, London, average of daily quotations.

Converted at monthly average rates of exchange as given in Federal Reserve Bulletin, except for period January 1926–August 1931, when par of exchange was used.

TABLE 346.—*Lard, refined: Average price per 100 pounds at Chicago, by months, 1925–34*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	17.59	17.03	18.25	17.07	16.50	18.13	18.42	18.94	18.95	18.75	18.50	16.67	17.90
1926	16.81	16.44	16.70	16.75	17.13	18.48	18.00	17.38	17.50	16.75	15.75	15.25	16.91
1927	13.59	13.72	14.38	14.32	14.12	13.35	12.25	12.54	14.25	14.50	13.60	13.25	13.66
1928	12.50	11.60	11.50	12.50	13.10	13.50	14.00	14.70	15.25	14.40	13.62	12.88	13.30
1929	12.75	12.75	13.31	13.25	12.85	12.85	13.22	13.56	13.81	13.17	12.21	11.94	12.97
1930	11.45	12.38	12.12	11.65	11.50	11.00	10.50	12.44	14.25	13.94	12.31	10.70	12.02
1931	9.62	8.94	10.00	10.00	9.50	9.53	8.65	8.32	9.00	8.58	8.47	7.65	9.02
1932	6.50	6.53	6.70	6.00	5.50	5.33	6.96	7.00	6.75	6.25	6.19	5.28	6.25
1933	5.69	5.00	5.50	6.09	7.23	7.04	7.53	6.65	6.31	6.73	6.98	6.25	6.42
1934	6.32	7.12	7.88	7.50	7.00	7.31	7.56	9.53	11.25	10.88	11.75	11.97	8.84

Bureau of Agricultural Economics. Compiled from data of the livestock and meat reporting service of the Bureau. Beginning January 1927 prices represent refined lard in hardwood tubs, earlier prices represent pure lard in tierces. Prices 1905 to December 1924 available in 1927 Yearbook, table 373.

TABLE 347.—*Pork and lard:*[1] *Stocks in cold-storage warehouses and meat-packing establishments, United States, 1925–34*

Product and year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
Dry salt pork, cured and in process of cure:	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1925	118,718	136,125	150,819	142,950	145,548	142,292	162,518	164,374	152,555	128,599	106,011	96,746
1926	119,617	138,005	144,071	151,286	140,324	136,801	148,164	168,882	172,766	143,572	98,521	66,765
1927	68,203	86,135	101,156	124,676	129,637	143,143	173,256	185,920	178,107	140,420	100,922	77,240
1928	97,335	119,751	160,609	178,012	173,652	169,663	174,906	164,473	156,462	125,899	101,123	102,440
1929	143,011	167,561	179,776	178,595	185,580	171,450	163,805	172,308	160,519	139,256	111,092	88,782
1930	107,782	116,288	123,740	115,653	110,303	105,913	108,171	114,095	97,237	71,143	43,194	48,931
1931	70,188	108,394	129,278	141,225	147,995	148,682	154,949	168,505	153,507	116,180	79,453	63,121
1932	87,188	103,827	122,902	124,242	127,146	128,423	118,092	111,210	108,779	91,355	65,337	50,874
1933	69,263	81,885	86,848	87,039	89,216	105,646	131,256	146,303	144,888	126,377	92,779	81,703
1934[2]	97,301	110,674	112,582	108,538	107,620	98,450	91,064	91,617	63,782	58,763	50,682	52,906
Pickled[3] pork, cured and in process of cure:												
1925	398,521	443,025	483,302	468,099	467,395	425,481	407,610	373,227	338,156	284,485	256,684	261,128
1926	294,642	319,726	345,661	346,049	338,905	320,305	333,305	340,687	330,326	293,106	257,726	266,222
1927	306,904	352,681	392,642	420,037	435,967	432,965	450,172	440,744	407,239	341,460	289,553	276,916
1928	320,436	370,916	461,264	496,322	480,069	459,878	454,826	408,994	351,936	285,309	265,988	292,626
1929	375,217	424,921	473,916	453,612	452,868	443,044	430,317	412,649	382,750	342,038	304,400	316,180
1930	368,126	392,123	443,882	430,926	411,705	392,403	396,810	380,182	329,074	283,979	249,485	285,636
1931	328,010	402,448	453,042	431,926	453,038	434,324	403,908	362,423	311,985	277,148	247,986	264,205
1932	334,360	383,273	445,346	419,687	430,772	442,222	411,208	372,787	349,559	328,309	308,032	291,177
1933	319,794	350,114	368,592	370,169	375,257	389,102	416,740	433,842	416,891	375,563	324,760	365,766
1934[2]	402,632	442,438	437,044	381,248	382,616	376,768	369,392	370,695	326,379	335,212	330,378	360,332
Frozen pork:												
1925	130,125	199,642	231,234	218,508	201,246	180,645	168,527	131,935	93,078	54,294	29,910	27,153
1926	57,960	98,311	120,115	129,259	124,569	117,366	120,707	133,104	119,994	77,673	49,376	55,241
1927	97,650	150,255	177,876	193,733	204,608	211,742	220,847	214,607	181,072	126,887	76,644	65,666
1928	105,654	164,971	264,043	323,403	306,951	289,825	285,628	245,714	173,617	103,879	66,049	66,696
1929	151,811	245,798	291,050	289,754	285,110	256,291	247,815	229,397	176,131	119,204	75,910	84,667
1930	145,078	178,695	217,942	206,417	189,692	176,851	174,240	157,167	124,648	92,305	64,127	77,137
1931	122,994	215,422	271,088	270,520	266,491	244,745	215,794	180,883	129,571	81,559	53,456	69,237
1932	141,758	187,051	244,151	248,268	241,146	225,221	194,971	159,055	120,538	78,589	60,179	61,847
1933	101,793	143,085	153,881	153,032	165,887	175,805	212,734	228,177	194,922	128,497	75,769	81,985
1934[2]	129,763	177,292	184,330	167,436	165,851	166,350	167,969	181,254	151,849	130,245	123,677	158,675
Lard:[1]												
1925	61,049	112,704	151,927	150,182	151,499	138,295	145,919	145,924	114,724	71,626	37,256	33,710
1926	42,478	64,187	76,145	93,108	98,365	106,824	120,527	153,572	151,233	105,558	72,355	46,744
1927	49,992	69,576	77,103	92,069	99,611	111,976	147,318	179,136	167,018	118,174	72,121	46,154
1928	54,855	84,007	121,082	164,506	173,088	186,073	214,479	204,939	177,888	126,890	83,474	67,257
1929	85,217	140,526	173,864	179,428	184,748	183,490	199,699	203,010	180,085	153,690	99,845	68,517
1930	82,098	92,171	111,914	105,067	104,905	115,270	120,322	118,353	88,868	59,732	36,211	31,582
1931	51,434	62,624	74,977	78,249	95,693	103,366	115,561	121,926	96,047	69,296	39,766	34,824
1932	51,224	78,430	92,861	105,635	111,007	128,103	130,363	121,618	100,577	70,656	34,410	29,766
1933	41,088	52,841	58,182	61,674	71,895	110,889	186,250	219,259	224,476	192,061	133,693	116,077
1934	132,510	168,756	176,044	173,775	179,098	182,240	195,135	209,497	167,155	128,054	105,519	103,827

[1] Lard includes all prime steam, kettle-rendered, neutral, and other pure lards. It does not include lard substitues nor compounds.

[2] Stocks of meat purchased under the emergency hog-control program by Federal Surplus Relief Corporation are not included in these figures for year 1934.

[3] Pickled pork includes sweet-pickled, plain-brine, and barreled pork.

Bureau of Agricultural Economics. Compiled from reports made by cold-storage establishments. Data for earlier years in 1928 Yearbook, table 390.

TABLE 348.—*Hogs and hog products: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	1,136,856	10,459	750,822	3,976	679,229	5,774	738,156	2,926
Denmark	557,264	2,869	897,558	2,249	923,307	1,166	698,653	860
Netherlands	249,396	15,089	285,673	4,883	257,759	3,134	193,699	1,872
Irish Free State	92,656	55,011	84,901	56,056	61,271	21,664	57,838	314
Canada	90,757	17,247	22,269	5,318	50,947	3,671	82,235	5,390
Poland	48,032	37,238	161,306	621	138,357	41	101,229	24
Sweden	41,205	9,796	67,870	4,940	49,750	3,523	47,593	4,844
Hungary	26,512	84	12,049	0	8,116	0	13,886	0
New Zealand	13,177	35	13,612	0	16,336	1	36,401	3
China	12,824	413	9,807	255	[2] 6,437	[2] 2,023	8,817	1,510
Argentina	9,319	42	14,116	16	24,351	9	35,336	8
Estonia	3,826	289	6,906	0	9,056	0	8,750	0
Australia [3]	3,374	2,119	11,768	173	11,737	17	9,921	32
Total	2,285,198	150,691	2,338,657	78,487	2,236,653	41,023	2,032,514	17,783
PRINCIPAL IMPORTING COUNTRIES								
United Kingdom	5,883	1,371,607	6,110	1,702,810	5,681	1,720,098	2,284	1,540,469
Germany	4,584	322,127	11,655	266,135	1,369	325,259	994	228,962
Cuba	0	130,313	0	64,066	0	34,868	0	----------
France	3,135	88,097	1,100	71,982	824	30,027	827	35,760
Czechoslovakia	4,018	81,017	2,074	63,341	716	48,252	360	35,928
Mexico	12	58,269	1	47,615	0	38,443	12	36,983
Austria	673	33,382	2,125	43,111	11	19,836	1	12,851
Belgium	7,184	22,099	2,602	47,399	1,426	39,362	2,764	33,663
Italy	3,212	16,850	2,679	3,447	1,932	15,568	2,309	11,772
Finland	379	12,024	3,753	4,731	4,470	4,681	5,934	6,907
Peru	6	11,692	0	2,445	0	2,084	1	----------
Norway	17	8,285	47	2,028	35	3,352	3,059	2,965
Philippine Islands	0	7,015	0	8,334	0	8,619	0	----------
Switzerland	188	6,765	17	5,366	256	1,959	154	3,103
Brazil	940	2,569	886	405	271	387	21,267	181
Spain	1,803	2,484	4,023	273	3,083	257	2,448	651
Union of South Africa	747	1,398	774	1,049	355	664	205	959
Chile	[4] 199	473	200	198	239	1	78	----------
Total	32,980	2,176,466	38,046	2,334,735	20,668	2,293,717	42,697	1,951,154

[1] Preliminary.
[2] Does not include Manchuria after June 30, 1932.
[3] Year ended June 30.
[4] 4-year average.

Bureau of Agricultural Economics; official sources.
These figures comprise: Pork, fresh, canned, pickled, smoked, bacon, Cumberland sides, Wiltshire sides, hams and shoulders, lard, lard compound, neutral lard, hog casings, lard oil, heads and feet.

TABLE 349.—*Bacon and hams, green, firsts: Average price per pound at British markets, 1925–34*

Year	Bacon, Wiltshire sides [1] at Bristol			Bacon, American bellies, at Liverpool	Ham, American short cut, at Liverpool
	Danish	Swedish	British		
	Cents	*Cents*	*Cents*	*Cents*	*Cents*
1925	27.5	25.6	30.1	25.9	26.1
1926	27.9	26.2	32.3	23.8	28.8
1927	21.2	19.3	26.9	20.0	22.9
1928	21.2	19.9	25.8	18.4	22.1
1929	24.5	23.8	28.3	19.5	23.8
1930	20.6	19.9	27.4	[3] 18.7	21.9
1931	13.2	12.2	19.6	12.6	16.6
1932	9.2	8.8	13.5	[2] 8.8	11.6
1933	13.6	14.4	17.2	[2] 11.0	13.9
1934	20.8	20.0	21.8	[4] 16.6	20.5

[1] Entire half of hog in 1 piece, head off, backbone out, ribs in. [2] 11 months. [3] 10 months. [4] 6 months.

Bureau of Agricultural Economics. Compiled from Agricultural Market Report, Ministry of Agriculture and Fisheries, Great Britain; average of weekly averages.
Converted at monthly average rates of exchange as given in Federal Reserve Bulletins, except for period January 1926–August 1931, when par of exchange was used.

TABLE 350.—*Lard: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	731, 629	0	642, 486	0	568, 708	0	546, 202	0	579, 132	0
Netherlands	64, 693	6, 748	39, 619	2, 831	60, 350	2, 769	37, 099.	2, 331	25, 320	1, 739
Denmark	25, 954	1, 383	38, 102	1, 377	50, 613	912	53, 305	304	43, 005	181
China	10, 672	0	8, 458	0	8, 074	0	[2] 4, 756	[2] 66	3, 254	8
Hungary	9, 618	15	9, 183	0	6, 636	0	4, 073	0	4, 404	0
Canada	4, 020	1, 462	175	1, 656	4, 730	48	4, 886	1, 040	2, 932	1, 563
Irish Free State	3, 852	699	3, 210	1, 016	3, 262	824	3, 093	467	5, 846	160
Madagascar	1, 998	2	1, 514	0	1, 689	0	2, 417	1	2, 430	0
Australia [3]	1, 550	413	970	206	1, 044	101	2, 924	15	1, 621	25
Total	853, 986	10, 722	743, 717	7, 086	705, 106	4, 654	658, 755	4, 224	667, 944	3, 676
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	912	267, 191	739	279, 444	645	284, 505	385	273, 027	356	321, 852
Germany	857	216, 643	[4] 267	177, 180	[4] 428	183, 454	[4] 57	237, 460	[4] 7	163, 460
Cuba	0	87, 352	0	69, 035	0	45, 178	0	21, 818	0	
Czechoslovakia	52	66, 159	7	52, 630	3	45, 401	1	41, 568	0	29, 564
Mexico	12	55, 972	6	77, 390	1	47, 615	0	37, 833	12	36, 343
Austria	672	33, 151	35	22, 334	1, 970	18, 493	8	11, 339	0	6, 669
France	500	32, 856	493	17, 414	304	4, 568	164	2, 830	193	8, 742
Poland	47	30, 326	22	26, 549	139	577	29	1	29	0
Belgium	2, 205	16, 257	1, 947	14, 199	1, 298	8, 980	836	12, 249	2, 435	20, 681
Peru	6	11, 692	0	4, 966	0	2, 445	0	2, 084	1	0
Italy	820	7, 523	256	5, 324	211	2, 793	38	5, 769	30	6, 654
Finland	54	6, 758	0	5, 277	0	3, 302	1	3, 838	0	4, 916
Switzerland	21	6, 031	10	3, 908	14	3, 345	25	1, 886	2	3, 098
Dominican Republic	0	4, 883	0	4, 058	0	4, 549	0	4, 418	0	4, 903
Philippine Islands	0	4, 799	0	4, 706	0	5, 909	0	5, 740	0	
British Malaya	1, 151	3, 832	815	2, 399	426	1, 978	379	1, 185	394	1, 449
Sweden	1, 327	2, 843	2, 560	1, 602	3, 512	1, 884	2, 553	1, 329	2, 284	1, 291
Brazil	231	2, 312	986	654	653	310	44	329	19, 302	108
Norway	1	1, 945	0	1, 177	0	1, 114	1	487	8	536
Yugoslavia	936	1, 501	262	201	1, 748	16	2, 161	0	2, 064	0
Total	9, 804	859, 026	8, 405	770, 447	11, 352	666, 416	6, 682	665, 190	27, 117	610, 266

[1] Preliminary.
[2] Does not include Manchuria after June 30, 1932.
[3] Year ended June 30.
[4] Includes oleomargarine.

Bureau of Agricultural Economics; official sources.

TABLE 351.—*Sheep and lambs: Number on farms and farm value per head in the United States, Jan. 1, 1900–1935*

Year	Number [1]	Farm value per head Jan. 1	Year	Number [1]	Farm value per head Jan. 1	Year	Number [1]	Farm value per head Jan. 1
	Thousands	*Dollars*		*Thousands*	*Dollars*		*Thousands*	*Dollars*
1900 [2]	*61, 504*		1912	43, 279	3. 46	*1925* [2]	*35, 590*	
1900	44, 573	2. 93	1913	40, 700	3. 94	1925	38, 392	
1901	46, 155	2. 98	1914	37, 773	4. 02	1926	40, 183	9. 68
1902	46, 667	2. 65	1915	36, 287	4. 50	1927	42, 302	10. 48
1903	45, 180	2. 63	1916	36, 543	5. 17	1928	45, 121	9. 67
1904	42, 439	2. 59	1917	36, 700	7. 13	1929	48, 249	10. 22
1905	40, 268	2. 82	1918	39, 000	11. 82	*1930* [2]	*56, 975*	10. 59
1906	42, 454	3. 54	1919	41, 000	11. 63	1930	51, 233	
1907	44, 518	3. 84	*1920* [2]	*35, 034*		1931	52, 599	8. 94
1908	46, 557	3. 88	1920	40, 643	10. 45	1932	53, 155	5. 36
1909	48, 382	3. 43	1921	39, 378	6. 27	1933	51, 762	3. 40
1910 [2]	*52, 448*		1922	36, 821	4. 79	1934	52, 212	2. 90
1910	47, 072	4. 12	1923	36, 695	7. 49	1935 [3]	49, 766	3. 79
1911	47, 349	3. 91	1924	37, 020	7. 88			4. 31

[1] Figures for 1900–1919 are tentative revised estimates of the Bureau of Agricultural Economics.
[2] Italic figures are from the census. Census dates were June 1, 1900, Apr. 15, 1910, Jan. 1, 1920, and 1925, and Apr. 1, 1930. 1900, 1910, and 1930 include spring-born lambs.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 352.—*Sheep and lambs: Number on farms and farm value per head, by States, Jan. 1, 1932–35*

State and division	Number				Farm value per head [1]			
	1932	1933	1934	1935 [2]	1932	1933	1934	1935
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Maine	79	70	65	55	3.50	3.00	3.30	3.50
New Hampshire	18	16	15	14	4.50	3.70	4.10	4.40
Vermont	39	36	34	32	3.90	3.50	3.90	4.20
Massachusetts	11	11	10	10	4.50	3.60	4.10	4.50
Rhode Island	2	2	2	2	4.50	4.00	4.50	4.50
Connecticut	10	10	9	8	4.70	4.30	4.80	5.10
New York	473	454	454	459	4.40	3.60	4.40	4.60
New Jersey	7	7	7	7	5.40	3.60	4.30	4.90
Pennsylvania	491	501	526	526	4.40	3.00	3.30	3.90
North Atlantic	1,130	1,107	1,122	1,113	4.35	3.30	3.79	4.23
Ohio	2,129	2,079	2,140	2,162	3.50	2.80	3.50	4.20
Indiana	840	785	773	805	4.00	3.30	4.10	5.40
Illinois	749	736	698	773	3.80	3.20	4.00	5.10
Michigan	1,248	1,230	1,161	1,103	3.90	3.10	4.00	4.60
Wisconsin	540	464	452	466	3.20	2.50	3.40	4.20
East North Central	5,506	5,294	5,224	5,309	3.67	2.97	3.75	4.59
Minnesota	1,132	1,137	1,188	1,179	3.20	2.80	3.80	4.20
Iowa	1,428	1,238	1,331	1,504	3.30	2.90	4.30	4.70
Missouri	1,225	1,200	1,189	1,247	3.30	2.70	3.80	4.40
North Dakota	1,100	1,046	951	744	3.30	2.70	3.70	3.70
South Dakota	1,375	1,441	1,524	1,290	3.30	2.90	3.80	3.90
Nebraska	1,036	1,057	997	740	3.00	2.80	4.20	4.30
Kansas	777	682	692	722	3.10	2.70	3.90	4.20
West North Central	8,073	7,801	7,872	7,426	3.23	2.78	3.94	4.24
North Central	13,579	13,095	13,096	12,735	3.41	2.86	3.86	4.38
Delaware	4	4	3	3	5.00	3.80	4.70	4.70
Maryland	108	108	109	109	5.10	3.80	4.50	4.60
Virginia	495	480	470	442	4.60	3.50	4.30	4.40
West Virginia	631	631	600	552	4.40	3.30	3.70	4.00
North Carolina	91	92	88	88	3.90	3.10	3.40	3.70
South Carolina	14	14	15	15	3.60	3.10	3.10	3.10
Georgia	36	36	36	36	2.30	2.20	2.40	2.60
Florida	43	44	43	42	2.40	2.30	2.40	2.60
South Atlantic	1,422	1,409	1,364	1,287	4.35	3.22	3.86	4.08
Kentucky	897	906	951	999	4.70	3.90	4.50	4.90
Tennessee	393	405	389	405	4.00	3.20	4.00	4.60
Alabama	50	52	47	47	2.60	2.00	2.30	2.90
Mississippi	100	100	95	81	2.00	1.80	2.30	2.60
Arkansas	59	61	58	58	2.60	2.00	2.20	2.60
Louisiana	140	143	137	137	2.70	2.00	2.20	2.70
Oklahoma	185	188	183	354	3.00	2.70	3.20	3.40
Texas	7,212	7,644	8,179	7,152	2.90	2.50	2.90	3.40
South Central	9,036	9,499	10,039	9,233	3.12	2.61	3.09	3.62
Montana	3,820	4,087	4,220	3,755	3.20	3.00	4.10	4.60
Idaho	2,274	2,264	2,461	2,335	3.60	3.20	4.10	4.70
Wyoming	3,972	3,893	3,873	3,579	3.60	3.20	4.10	4.60
Colorado	3,391	3,093	3,028	2,736	3.10	2.90	4.20	4.50
New Mexico	3,002	2,820	2,757	2,460	2.30	2.30	3.20	3.80
Arizona	1,090	1,003	961	942	2.40	2.30	3.40	3.90
Utah	2,755	2,360	2,242	2,168	3.70	3.00	3.90	4.40
Nevada	1,200	1,019	979	913	4.00	3.30	4.60	4.70
Washington	706	720	724	752	4.00	3.30	4.50	5.00
Oregon	2,580	2,355	2,460	2,497	3.60	2.90	3.90	4.60
California	3,198	3,038	2,886	3,261	4.20	3.30	4.20	5.00
Western	27,988	26,652	26,591	25,398	3.40	2.99	4.01	4.54
United States	53,155	51,762	52,212	49,766	3.40	2.90	3.79	4.31

[1] Sum of total value of classes divided by total number and rounded to nearest dime for States. Division and United States averages not rounded.

[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 353.—*Sheep: Number in countries having 100,000 and over, averages 1921–25 and 1926–30, annual 1930–33*

Country	Date or month of estimate	Average		1930	1931	1932	1933
		1921–25 [1]	1926–30 [1]				
NORTH AMERICA AND WEST INDIES		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
United States	January 1	37,662	45,448	51,383	52,599	53,155	51,762
Canada	June	3,027	3,431	3,696	3,608	3,644	3,386
Mexico	do	[2] 1,362	3,186	[3] 3,674			
Guatemala		153	196	184	147	166	
Cuba		(75)	102	[4] 102			
Dominican Republic		148	162				
Estimated total [5]		42,700	52,800				
SOUTH AMERICA							
Colombia		776	794	810	900		
Venezuela		113	(113)				
Ecuador		(1,000)	1,100	[6] [6] 1,500			
Peru		11,363	[3] 11,209	[3] [4] 11,209			
Bolivia	January 1 [7]	3,436	4,742	5,020	5,232		
Chile		4,332	[3] 6,263	[3] 6,263		[3] 6,083	
Brazil	September	[8] 7,933	(10,702)		10,702	10,661	
Uruguay		[3] 14,443	19,958	[3] 20,558	(18,000)	15,406	
Paraguay	January 1 [7]	(600)	(600)				
Argentina	do	[3] 36,209	[3] [9] 44,413	[3] [9] 44,413			
Falkland Islands		649	613	607	609	616	
Estimated total [5]		80,900	100,500				
EUROPE							
Iceland		565	628	690	691		
England and Wales	June	14,385	16,548	16,316	17,749	18,495	18,090
Scotland	do	6,827	7,505	7,650	7,831	7,916	7,811
Northern Ireland	do	456	622	704	794	792	750
Irish Free State	do	2,804	3,255	3,515	3,575	3,461	3,405
Norway [10]	do	1,380	1,596	1,588	1,692	1,736	1,764
Sweden	July	1,384	680	653	635	608	575
Denmark	do	380	213	193			179
Netherlands	May–June	[3] 668	[3] 485	[3] 485			
Belgium	January 1 [7]	126	[6] 122				
France	do	9,777	10,574	10,452	10,152	9,845	9,762
Spain	do	19,229	19,989	(19,140)	(19,590)	20,047	
Portugal	do	3,721	4,450	[6] [6] 4,000			
Italy	March–April	12,014	11,310	[3] 10,269			
Switzerland	April	245	170		185		
Germany	January 1 [7]	5,889	3,953	3,480	3,504	3,499	3,405
Austria	do	526	[3] 272	[3] 272			
Czechoslovakia	do	[3] [8] 986	848	[3] [9] 836	608	531	465
Hungary	April	1,661	1,604	1,464	1,440	1,210	1,058
Yugoslavia	January 1	7,683	7,807	7,736	7,953	8,426	8,510
Greece	do. [7]	5,965	6,551	5,806	6,799	7,072	6,927
Bulgaria	do	8,186	8,384	[4] 7,986			
Rumania	do	11,660	12,936	12,406	12,230	12,356	12,293
Poland	November	2,193	2,244	2,492	2,599	2,488	2,557
Lithuania	June 30	1,314	1,335	1,097	1,212	1,317	1,322
Latvia	June	1,240	1,030	873	923	984	1,114
Estonia	July	654	587	467	479	514	541
Finland	September	1,526	1,196	924	920	965	
Union of Soviet Socialist Republics [11]	Summer	98,100	122,780	99,000	70,700	47,400	45,700
Estimated total excluding Union of Soviet Socialist Republics [5]		123,600	127,100				
AFRICA							
Ethiopia		(2,000)	4,000	[4] 4,000			
Morocco		7,533	8,364	7,976	6,613	7,556	
Algeria	September	5,943	6,170	7,172	4,671	5,269	5,262
Libia (Italian)		1,043	931	682			
Tunis	January 1 [7]	1,794	2,055	2,461	2,976	2,475	2,931
French West Africa		3,742	4,563	5,211	5,677	5,470	
French Sudan		2,173	2,576	3,000	3,100	3,100	
Gold Coast		373	432	684	684	684	
Nigeria, including British Cameroons		1,711	3,004	2,478	2,353	2,028	
Egypt	September	1,013	1,138	1,129	1,239	1,344	1,345
Anglo-Egyptian Sudan		1,638	2,160	2,200	2,250	2,250	
British Somaliland		(2,000)	1,800	2,000	2,500	2,500	
Italian Somaliland	March 31	1,666	914	847			
Eritrea (Italian) [12]		(1,106)	1,216	1,233			
Kenya	March–June	2,600	2,908	3,228	3,243		
French Cameroon		(103)	216	319	320	320	
Uganda	January 1 [7]	386	831	806	792	908	844
French Equatorial Africa		(700)	845	1,004	1,024	1,030	
Belgian Congo		304	282	272	244	332	

See footnotes at end of table.

TABLE 353.—*Sheep: Number in countries having 100,000 and over, averages 1921–25 and 1926–30, annual 1930–33*—Continued

Country	Date or month of estimate	Average 1921–25 [1]	Average 1926–30 [1]	1930	1931	1932	1933
AFRICA—continued		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Ruanda		150	289	258	290	315	
British Southwest Africa		954	1,249	1,311	1,397	1,524	994
Bechuanaland	January 1	125	159	179	180	181	200
Union of South Africa	August	32,561	43,129	48,520	[13] 51,000	[13] 48,200	[13] 43,700
Basutoland	January 1 [7]	1,954	2,146	2,233	2,829	1,949	1,885
Rhodesia, Southern	do.[7]	333	349	354	360	376	376
Tanganyika Territory	do	(1,600)	2,032	2,262	2,233	2,281	
Madagascar	do	110	158	165	207	189	
Estimated total [5]		76,100	93,600				
ASIA							
Arabia		(3,500)	[6] 3,500	[6] 3,500			
Cyprus	March	237	259	290	306	304	
Turkey, European and Asiatic		10,458	11,853	10,498	11,762	11,768	11,070
Iraq (Mesopotamia) [12]	February	5,270	5,534	5,349	5,464	4,307	
Palestine	March	271	249	253	306	248	
Transjordan		(236)	237	229	292	261	
Iran (Persia)		16,562	15,460	[4] 16,000			
Syria and Lebanon		1,797	2,035	2,682	2,969	2,080	
India:							
British	January–April	22,412	23,733	[3] 25,540	25,295	25,286	
Native States	do	12,299	13,578	[3] 19,089	18,295		
China, including Turkestan, Manchuria, Inner Mongolia.		[14](30,000)	[15] 26,000				[15] 26,000
Philippines	January 1 [7]	115	125	125	128	112	
Netherlands Indies:							
Java and Madura	do	915	1,292				1,588
Outer possessions	do	115	121				216
Estimated total, excluding Union of Soviet Socialist Republics [5]		114,300	114,100				
OCEANIA							
Australia	January 1 [7]	85,556	103,329	104,558	110,568	110,619	112,915
New Zealand	April	23,382	27,516	30,841	29,793	28,692	27,756
Estimated total [5]		109,000	130,900				
Total countries reporting all Periods:							
To 1932 (57) [16]		467,981	551,106	545,387	526,170	496,607	
To 1933 (32) [16]		379,506	451,258	441,676	424,649	398,754	390,451
Estimated world total including Union of Soviet Socialist Republics [5] [17]		644,700	742,200				

[1] Average for 5-year period if available; otherwise, for any year or years within this period except a otherwise stated.
[2] Incomplete.
[3] Census figures.
[4] Year 1929 or nearest year.
[5] These totals include countries with less than 100,000; interpolations for a few countries not reporting each year, and rough estimates for some others.
[6] Unofficial.
[7] Estimates for countries reporting as of Dec. 31 have been considered as of Jan. 1 of following year; i. e., figures for numbers of sheep in France as of Dec. 31, 1929, have been placed in 1930 column, etc.
[8] Census 1920.
[9] June 1930.
[10] In rural communities only.
[11] Years 1921–28 from Livestock Industry in the Soviet Union. Later figures from Pravda, Jan. 28, 1934, and Socialist Agriculture, Nov. 27, 1934. Sheep numbers for 1929–33 estimated from total number of sheep and goats.
[12] Goats included.
[13] Estimate based on change in sheep numbers in June compared with preceding June.
[14] Estimate based on increases in 1920 in 20 Provinces which supported 80 percent of total number in China in 1914.
[15] Estimate based on official estimate for 1932 or 1933 published in the Chinese Economic Bulletin for 22 Provinces which supported 77 percent of total in 1914. The official estimate excluding Turkistan and Inner Mongolia for 1932 or 1933 was 19,995,000. Estimates for this territory and for Manchuria included with China in this table.
[16] Comparable totals for numbers of countries indicated.
[17] Comparable estimated world totals by countries were as follows in millions of head: 1909–13, North America, Central America, and West Indies, 49.6; South America, 93.2; Europe (excluding Union of Soviet Socialist Republics), 134.4; Africa, 71.2; Asia (excluding Union of Soviet Socialist Republics), 115.3; Oceania, 114.7; estimated world total, including Union of Soviet Socialist Republics, 691.6.

Bureau of Agricultural Economics; compiled from official sources and the International Institute of Agriculture unless otherwise stated. Figures in parentheses are interpolated. See wool issue of Foreign Crops and Markets usually published in May, and World Wool Prospects published monthly by the Bureau, for later figures.

TABLE 354.—*Sheep: Receipts at principal public stockyards and at public stockyards, 1925–34*

Year	Chicago	Denver	East St. Louis	Fort Worth	Kansas City	Omaha	South St. Joseph	South St. Paul	Sioux City	Total nine markets [1]	All other stockyards reporting	Total all stockyards reporting [1]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	3,969	2,357	559	314	1,500	2,420	1,143	545	360	13,166	8,934	22,100
1926	4,405	1,826	636	445	1,762	2,780	1,303	773	449	14,378	9,490	23,868
1927	3,829	1,908	574	445	1,616	2,604	1,348	705	527	13,555	10,384	23,939
1928	3,868	2,295	510	458	1,767	3,037	1,580	891	568	14,974	10,623	25,597
1929	3,785	2,290	534	540	1,753	3,031	1,636	1,139	840	15,548	11,320	26,868
1930	4,335	2,062	584	432	2,016	3,410	1,634	1,354	1,188	17,015	12,793	29,808
1931	4,489	2,499	661	1,173	2,244	3,510	1,572	1,690	1,279	19,118	13,905	33,023
1932	3,922	2,834	711	1,198	1,837	2,388	1,291	1,522	776	16,479	12,827	29,306
1933	3,536	2,902	659	779	1,672	2,125	1,233	1,552	857	15,316	11,868	27,184
1934 [2]	3,003	3,109	650	597	1,738	1,968	1,144	1,584	1,167	14,958	11,180	26,138

[1] Rounded totals of complete figures.
[2] Includes sheep purchased for Federal Surplus Relief Corporation from Sept. 14 to Dec. 15.

Bureau of Agricultural Economics; compiled from data of the livestock and meat-reporting service of the Bureau.
Receipts 1900–24 are available in 1924 Yearbook, table 540.

TABLE 355.—*Sheep: Receipts and stocker and feeder shipments at United States public stockyards, 1925–34*

RECEIPTS

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	1,467	1,388	1,504	1,541	1,689	1,603	1,699	2,064	2,627	3,198	1,712	1,608	22,100
1926	1,548	1,486	1,694	1,502	1,717	1,913	1,739	2,277	3,279	3,090	1,917	1,706	23,868
1927	1,740	1,501	1,558	1,486	2,013	1,816	1,676	2,209	2,848	3,587	1,896	1,609	23,939
1928	1,705	1,669	1,520	1,591	1,952	1,913	1,898	2,362	3,386	3,938	2,053	1,610	25,597
1929	1,877	1,544	1,527	2,012	2,173	1,752	2,119	2,545	3,355	4,093	2,168	1,703	26,868
1930	1,903	1,803	2,151	2,230	2,334	2,230	2,296	2,583	3,580	3,784	2,607	2,307	29,808
1931	2,175	1,964	2,120	2,713	2,810	2,587	2,535	3,270	3,900	3,956	2,811	2,182	33,023
1932	2,363	2,035	2,115	2,412	2,429	2,428	2,240	2,919	3,239	3,266	2,203	1,657	29,306
1933	1,914	1,795	1,844	2,097	2,403	2,091	2,228	2,795	2,911	3,268	2,064	1,774	27,184
1934 [1]	1,820	1,456	1,570	1,838	2,114	1,810	2,152	2,622	3,324	4,057	1,833	1,542	26,138

STOCKER AND FEEDER SHIPMENTS

1925	138	119	94	109	178	137	193	421	857	1,392	475	219	4,332
1926	156	107	83	124	130	287	260	567	1,093	1,150	493	223	4,673
1927	207	136	140	118	259	257	215	389	943	1,560	497	174	4,895
1928	116	101	95	133	205	278	234	564	1,080	1,466	544	193	5,011
1929	188	115	122	210	218	226	231	639	1,027	1,831	575	183	5,565
1930	126	101	99	134	142	216	206	465	907	1,024	761	282	4,463
1931	184	105	103	189	176	289	243	718	1,262	1,181	655	182	5,287
1932	124	80	77	143	100	172	181	460	535	803	501	196	3,373
1933	108	82	67	107	130	100	108	347	498	857	461	143	3,008
1934 [1]	111	79	81	135	155	115	190	397	774	908	283	133	3,361

[1] Includes sheep purchased for Federal Surplus Relief Corporation from Sept. 14 to Dec. 15.

Bureau of Agricultural Economics. Compiled from data of livestock and meat-reporting service of the Bureau. Earlier data in 1930 Yearbook, table 399.

TABLE 356.—*Farm prices of sheep, per head, by ages, United States, Jan. 1, 1925–35*

Year	Under 1 year old	Ewes 1 year and over	Wethers 1 year and over	Rams	Year	Under 1 year old	Ewes 1 year and over	Wethers 1 year and over	Rams
	Dollars	*Dollars*	*Dollars*	*Dollars*		*Dollars*	*Dollars*	*Dollars*	*Dollars*
1925	8.53	10.02	7.13	16.91	1931	4.64	5.42	3.43	12.91
1926	9.04	11.01	7.32	18.45	1932	2.87	3.47	2.38	8.20
1927	7.91	10.32	6.60	18.73	1933	2.66	2.88	1.79	6.87
1928	8.45	10.86	7.23	19.63	1934	3.49	3.75	2.27	9.16
1929	8.93	11.19	7.64	20.27	1935	3.71	4.40	2.68	9.53
1930	7.85	9.10	6.44	19.61					

Bureau of Agricultural Economics. Based on returns from special price reporters. Average price, by States, weighted by estimated numbers each age group.

TABLE 357.—*Sheep: Average price per 100 pounds received by producers, United States, 1925–34*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	7.86	8.41	8.20	8.42	7.53	7.04	7.17	7.32	7.27	7.31	7.51	7.79	**7.70**
1926	7.95	8.20	7.66	7.67	7.78	7.56	7.09	6.92	7.13	6.93	6.75	6.95	**7.43**
1927	6.87	7.16	7.41	7.40	7.68	7.27	7.16	7.13	7.06	7.05	7.42	7.38	**7.26**
1928	7.52	7.60	7.85	8.11	8.09	7.84	7.56	7.53	7.58	7.50	7.50	7.29	**7.68**
1929	7.84	7.98	8.36	8.40	8.09	7.86	7.25	7.32	7.01	6.83	6.75	6.61	**7.55**
1930	6.91	6.84	6.59	6.44	5.86	5.52	4.65	4.13	4.21	3.93	3.98	3.96	**5.36**
1931	4.04	4.15	4.24	4.24	3.91	3.28	3.01	3.00	2.80	2.63	2.63	2.52	**3.43**
1932	2.48	2.67	2.91	2.86	2.52	2.36	2.37	2.19	2.17	2.03	2.06	2.04	**2.40**
1933	2.10	2.16	2.18	2.29	2.47	2.46	2.59	2.57	2.52	2.46	2.38	2.48	**2.37**
1934	2.71	3.46	3.66	3.63	3.54	2.98	2.73	2.59	2.45	2.52	2.55	2.66	**2.98**

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of sheep Jan. 1, to obtain a price for the United States; yearly price obtained by weighting monthly prices by Federal inspected slaughter. Data for earlier years in 1928 Yearbook, table 407. Only monthly prices are comparable.

TABLE 358.—*Lambs: Average price per 100 pounds received by producers, United States, 1925–26 to 1934–35*

Year	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 13	Mar. 15	Apr. 15	May 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925–26	11.62	11.71	11.80	11.95	12.04	12.20	12.67	12.79	12.02	11.56	11.32	11.78	**11.98**
1926–27	12.07	11.52	11.12	11.32	11.31	11.11	10.92	10.65	10.84	11.55	11.97	11.92	**11.36**
1927–28	11.95	11.44	11.15	11.14	11.22	11.42	11.39	11.34	11.90	12.31	12.73	13.03	**11.76**
1928–29	13.18	12.25	11.88	11.97	11.57	11.50	11.41	12.23	12.60	13.12	13.36	12.79	**12.31**
1929–30	12.31	11.90	11.46	11.08	10.97	10.74	10.76	11.10	10.46	9.63	9.02	8.92	**10.71**
1930–31	9.02	8.08	6.82	6.67	6.15	6.21	6.18	6.30	6.59	6.84	6.94	6.96	**6.92**
1931–32	6.42	5.60	5.33	5.04	4.64	4.46	4.19	4.43	4.58	5.05	5.13	4.78	**4.97**
1932–33	4.49	4.37	4.11	4.11	3.95	3.91	3.95	4.09	4.19	4.27	4.34	4.72	**4.21**
1933–34	5.18	5.24	5.26	5.08	5.01	4.95	4.92	5.50	6.55	6.79	6.82	6.95	**5.66**
1934–35	6.37	5.64	5.02	4.86	4.81	4.84	5.01						

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of lambs Jan. 1, to obtain a price for the United States; yearly price obtained by weighting monthly prices by receipts at principal markets. Data for earlier years in 1928 Yearbook table 408. Only monthly prices are comparable.

TABLE 359.—*Sheep and lambs: Average price per 100 pounds at Chicago, by months, 1925–34*

SHEEP

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average [1]
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	10.33	9.69	9.22	7.84	7.96	6.25	7.48	6.83	6.95	7.64	8.16	9.57	8.16
1926	9.72	9.18	8.82	8.87	7.97	5.85	5.97	6.50	6.25	6.12	5.88	5.86	7.25
1927	6.94	8.03	8.88	9.62	7.44	5.88	6.25	6.47	6.14	6.00	6.40	6.41	7.04
1928	7.03	8.96	9.47	10.16	8.53	6.12	6.28	6.72	6.34	6.18	5.84	7.03	7.39
1929	9.32	8.78	9.72	10.34	6.78	6.28	5.85	5.34	4.56	4.70	5.38	5.41	6.87
1930	6.50	5.53	5.59	5.66	5.31	3.38	3.12	3.53	3.50	3.10	3.34	3.22	4.32
1931	3.97	4.25	4.54	3.90	2.78	1.62	2.50	2.03	1.58	1.94	2.16	2.18	2.79
1932	2.62	3.25	3.75	3.06	1.41	1.65	1.66	1.92	1.62	1.59	1.82	2.08	2.20
1933	2.30	2.34	2.48	2.38	2.51	2.34	2.09	2.25	2.14	2.03	2.18	2.55	2.30
1934	3.42	4.41	5.06	5.06	2.65	1.59	1.88	2.34	2.17	1.90	2.09	2.84	2.95

LAMBS

1925	18.28	17.59	16.28	14.85	13.06	15.86	15.11	14.88	15.19	15.20	15.44	16.15	15.66
1926	15.28	13.78	13.48	14.38	15.30	16.66	14.31	14.20	14.05	13.88	13.25	12.57	14.26
1927	12.64	13.28	15.27	15.87	14.75	15.66	14.25	13.68	13.46	13.70	13.80	13.14	14.12
1928	13.16	15.39	16.26	16.81	16.10	16.84	15.61	14.72	14.29	13.12	13.31	14.31	14.99
1929	16.37	16.53	17.07	16.82	13.62	15.34	14.38	13.50	13.19	12.72	12.72	13.22	14.62
1930	13.28	11.03	10.28	9.38	9.73	12.28	10.18	9.39	8.24	7.72	7.34	7.44	9.69
1931	8.43	8.19	8.31	9.06	8.55	7.72	6.62	6.88	6.49	5.88	5.64	5.32	7.26
1932	5.88	6.26	6.83	6.69	5.12	6.26	6.22	5.72	5.56	5.12	5.60	5.82	5.92
1933	5.90	5.51	5.41	5.25	6.36	7.50	7.82	7.52	7.16	7.00	6.95	7.37	6.65
1934	8.58	9.66	9.25	9.54	8.47	8.84	7.42	6.98	6.59	6.41	6.66	7.76	8.01

[1] Simple average of monthly prices.

Bureau of Agricultural Economics. Bulk of sales prices from data of the livestock and meat reporting service of the Bureau.

Data for 1901–24 are available in 1932 Yearbook, table 356.

TABLE 360.—*Sheep and lambs: Annual slaughter under Federal inspection, 1907–34, estimated equivalent of Federal inspection, 1900–1906, and estimated total slaughter (including farm) in United States, 1900–1934* [1]

Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]
	Thousands	*Thousands*		*Thousands*	*Thousands*		*Thousands*	*Thousands*
1900	8,940	12,015	1912	14,979	19,247	1924	11,991	15,441
1901	9,996	12,358	1913	14,406	18,520	1925	12,001	15,454
1902	10,519	13,038	1914	14,229	18,290	1926	12,961	16,689
1903	10,508	13,683	1915	12,212	15,756	1927	12,883	16,589
1904	10,046	13,126	1916	11,941	15,408	1928	13,488	17,348
1905	10,026	12,823	1917	9,345	12,149	1929	14,023	18,048
1906	10,385	13,371	1918	10,320	13,359	1930	16,697	21,132
1907	10,252	13,360	1919	12,691	16,317	1931	18,071	23,038
1908	10,305	13,526	1920	10,982	14,180	1932	17,899	22,945
1909	11,343	14,725	1921	13,005	16,710	1933	17,354	----------
1910	11,408	14,797	1922	10,929	14,112	1934	17,412	----------
1911	14,020	18,057	1923	11,529	14,862			

[1] Federal Meat Inspection Act, effective Oct. 1, 1906.
[2] Subject to revision.

Bureau of Animal Industry and Bureau of Agricultural Economics.
Data for years 1880–99 last printed in 1933 Yearbook, table 349.

TABLE 361.—*Sheep and lambs: Shipments, slaughter, value of production, and income by States, 1933*

State and division	Shipments and local slaughter				Inshipments, stocker, feeding, and breeding			
	Sheep		Lambs		Sheep		Lambs	
	Head	Total weight	Head	Total weight	Head	Total weight	Head	Total weight
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*
Maine	8	800	14	840				
New Hampshire	2	200	5	300				
Vermont	6	600	8	480				
Massachusetts	1	110	3	195				
Rhode Island			1	65				
Connecticut	2	220	2	130				
New York	54	6,318	198	13,879	2	200	36	2,160
New Jersey			1	75				
Pennsylvania	21	2,205	214	14,980	1	100	2	120
North Atlantic	94	10,453	446	30,944	3	300	38	2,280
Ohio	129	14,835	947	66,290	1	100	41	2,665
Indiana	54	6,480	636	54,060	5	500	169	10,985
Illinois	90	10,800	706	60,010	24	2,400	300	21,000
Michigan	110	13,200	686	58,310	5	500	108	7,344
Wisconsin	47	5,170	362	28,960	2	220	163	11,410
East North Central	430	50,485	3,337	267,630	37	3,720	781	53,404
Minnesota	77	8,540	913	75,761	13	1,300	381	22,860
Iowa	97	11,640	1,066	85,280	27	2,700	500	32,500
Missouri	101	11,110	918	68,850	11	1,155	225	14,625
North Dakota	92	10,120	614	46,050			67	4,355
South Dakota	135	14,850	606	45,450	5	550	50	3,750
Nebraska	58	6,655	1,466	128,968	27	2,430	1,300	78,000
Kansas	26	2,860	722	64,960	11	1,100	420	27,300
West North Central	586	65,775	6,305	515,319	94	9,235	2,943	183,390
North Central	1,016	116,260	9,642	782,949	131	12,955	3,724	236,794
Delaware			3	195				
Maryland	4	440	74	5,920	1	110	1	65
Virginia	10	1,200	380	30,400	1	90	3	240
West Virginia	41	4,510	419	33,520			1	80
North Carolina	5	425	44	2,420				
South Carolina			6	270				
Georgia			7	350				
Florida	4	340	4	200				
South Atlantic	64	6,915	937	73,275	2	200	5	385
Kentucky	1	120	810	60,750	3	300	48	3,360
Tennessee	53	5,830	257	19,275	2	220		
Alabama	7	560	3	150				
Mississippi	13	1,040	12	600				
Arkansas	8	840	19	1,140				
Louisiana	11	1,023	34	1,700				
Oklahoma	26	2,730	100	6,500			14	700
Texas	347	32,965	1,707	102,570	30	3,000	45	2,700
South Central	466	45,108	2,942	192,685	35	3,520	107	6,760
Montana	199	21,890	1,344	100,800				
Idaho	175	20,125	1,633	130,640	49	4,900	646	41,990
Wyoming	259	26,686	920	59,820	10	1,000	74	4,810
Colorado	182	19,110	2,137	170,960	321	33,705	1,149	68,940
New Mexico	108	10,800	507	32,955	20	2,000	5	350
Arizona	35	3,745	230	17,250				
Utah	203	21,721	675	47,250	30	3,000	72	5,040
Nevada	47	4,900	242	15,730	1	105	5	325
Washington	45	4,950	366	29,280	6	600	20	1,400
Oregon	122	13,054	858	65,208			4	304
California	193	19,300	1,631	122,675	40	3,600	200	12,000
Western	1,568	166,281	10,543	792,568	477	48,910	2,175	135,159
United States	3,208	345,017	24,510	1,872,421	648	65,885	6,049	381,378

TABLE 361.—*Sheep and lambs: Shipments, slaughter, value of production, and income by States, 1933*—Continued

State and division	Farm slaughter				Value of amount consumed on farms	Receipts from sales	Gross income	Value of production
	Sheep		Lambs					
	Head	Total weight	Head	Total weight				
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	2	200	9	540	9	100	109	91
New Hampshire			1	60	1	26	27	27
Vermont			2	120	1	42	43	39
Massachusetts			1	65	1	18	19	18
Rhode Island						4	4	4
Connecticut			1	65	1	19	20	15
New York	10	1,170	15	1,065	8	827	835	863
New Jersey			1	75	1	8	9	8
Pennsylvania	7	770	10	700	8	917	925	992
North Atlantic	19	2,140	40	2,690	30	1,961	1,991	2,057
Ohio	4	480	10	800	35	3,660	3,695	3,776
Indiana	2	250	2	160	11	2,463	2,474	2,396
Illinois	3	360	9	765	41	1,994	2,035	1,904
Michigan	1	120	8	600	12	2,861	2,873	2,770
Wisconsin	3	375	7	630	29	772	801	1,009
East North Central	13	1,585	36	2,955	128	11,750	11,878	11,855
Minnesota	6	744	7	567	35	2,650	2,685	3,121
Iowa	4	500	8	640	41	2,548	2,589	3,146
Missouri	2	240	4	300	17	3,152	3,169	3,310
North Dakota	6	720	9	720	44	2,080	2,124	1,830
South Dakota	4	440	6	450	30	2,311	2,341	2,144
Nebraska	3	345	5	375	26	1,937	1,963	2,458
Kansas	3	360	5	380	22	1,319	1,341	1,788
West North Central	28	3,349	44	3,432	215	15,997	16,212	17,797
North Central	41	4,934	80	6,387	343	27,747	28,090	29,652
Delaware			1	65	1	16	17	13
Maryland			2	160	4	384	388	391
Virginia	11	1,320	13	1,040	49	1,757	1,806	1,772
West Virginia	3	330	5	400	17	1,920	1,937	1,996
North Carolina	1	90	9	495	14	150	164	158
South Carolina			1	45	1	15	16	19
Georgia	2	170	2	100	6	22	28	27
Florida			1	50	1	21	22	20
South Atlantic	17	1,910	34	2,355	93	4,285	4,378	4,396
Kentucky	3	360	4	300	17	3,654	3,671	3,825
Tennessee	4	440	6	450	24	1,289	1,313	1,252
Alabama			3	150	3	26	29	18
Mississippi	1	80	3	150	5	64	69	56
Arkansas	1	105	2	120	4	74	78	70
Louisiana	2	186	4	200	8	110	118	101
Oklahoma	1	110	2	130	7	349	356	283
Texas	10	900	25	1,750	77	4,528	4,605	6,118
South Central	22	2,181	49	3,250	145	10,094	10,239	11,723
Montana	8	960	14	1,050	54	5,469	5,523	5,691
Idaho	10	1,150	20	1,600	90	4,263	4,353	5,225
Wyoming	10	1,100	20	1,400	81	3,303	3,384	2,830
Colorado	10	1,050	16	1,280	75	2,640	2,715	4,456
New Mexico	60	6,000	25	1,625	180	1,671	1,851	1,807
Arizona	72	7,704	48	3,600	342	1,012	1,354	1,391
Utah	30	3,210	20	1,500	129	2,435	2,564	2,344
Nevada	7	700	8	520	42	958	1,000	910
Washington	6	720	10	800	22	1,454	1,476	1,505
Oregon	10	1,100	17	1,292	60	3,513	3,573	3,712
California	25	2,500	30	2,310	124	5,695	5,819	5,671
Western	248	26,194	228	16,977	1,199	32,413	33,612	35,542
United States	347	37,359	431	31,659	1,810	76,500	78,310	83,370

Bureau of Agricultural Economics; preliminary estimates of Division of Crop and Livestock Estimates. The figures on income as shown in tables 461 and 462 are computed from the data shown in this table. The difference between value of production and income arises from the fact that in computing value of production, allowance is made for changes in inventory numbers between the beginning and end of the year, while in computing income these changes are not used.

TABLE 362.—*Mutton and lamb: International trade, average 1925–29, annual 1930–33*

Country	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
New Zeland	301,079	0	381,914	0	387,861	0	431,292	0	427,535	0
Argentina	176,547	0	177,693	0	184,106	0	156,494	0	138,116	0
Australia [2]	72,153	17	100,411	0	109,253	0	165,281	0	166,798	0
Uruguay	41,048	0	62,304	0	40,312	0	13,484	0	-------	0
Netherlands	14,942	1,049	11,342	550	11,015	598	8,698	349	6,690	392
Brazil	1,758	0	7,402	0	3,736	0	3,040	0	1,271	0
Irish Free State	1,370	344	2,003	259	2,780	255	801	181	4,979	-------
Estonia	557	0	681	0	768	0	827	0	828	0
Poland	120	9	1,112	0	2,629	0	1,365	0	1,145	0
Total	609,574	1,419	744,862	809	742,460	853	781,282	530	747,362	392
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	629,309	0	730,271	0	813,107	0	793,389	0	768,543
France	213	22,035	143	27,679	448	38,116	384	18,892	205	19,895
Germany	637	7,868	2,457	9,679	1,480	342	94	442	10	347
United States	1,087	7,255	1,251	8,181	550	5,503	259	5,009	321	6,215
Norway	0	4,581	0	4,904	0	3,580	0	3,311	0	1,480
Belgium	702	3,763	1,724	4,391	592	4,756	105	6,472	62	4,290
Canada	1,501	2,335	242	4,412	333	1,294	348	702	406	297
Denmark	9	2,152	6	2,638	5	2,552	5	452	19	341
Sweden	36	1,058	25	1,515	7	1,837	1	1,330	1	1,432
Total	4,185	680,356	5,848	793,670	3,415	871,087	1,196	829,999	1,024	802,840

[1] Preliminary. [2] Year ended June 30.

Bureau of Agricultural Economics; official sources.

TABLE 363.—*Wool: Production, exports, imports, and amount available for consumption, of combing and clothing wool, and imports of carpet wool, United States, 1910–34*

Calendar year	Combing and clothing						Carpet, imports, less reexports
	Production			Total exports, domestic [1]	Imports, less reexports [1]	Available for consumption [2]	
	Shorn	Pulled	Total				
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1910	281,363	40,000	321,363	[3] 48	94,374	415,689	76,705
1911	277,548	41,000	318,548	[4]	50,928	369,476	101,484
1912	262,543	41,500	304,043	[4]	111,653	415,696	124,649
1913	252,675	43,500	296,175	[3] 77	61,306	357,404	86,416
1914	247,192	43,000	290,192	[3] 335	165,882	455,739	84,277
1915	245,726	40,000	285,726	[3] 8,158	307,354	584,922	93,175
1916	244,890	43,600	288,490	3,919	364,355	648,926	76,167
1917	241,892	40,000	281,892	1,827	341,864	621,929	73,002
1918	256,870	42,000	298,870	407	377,682	676,145	69,292
1919	249,958	48,300	298,258	2,840	336,774	632,192	96,873
1920	250,617	42,900	293,517	8,845	207,419	492,091	35,093
1921	241,465	48,500	289,965	1,927	217,233	505,271	97,820
1922	228,109	42,000	270,109	453	189,486	459,142	172,828
1923	229,895	42,500	272,395	535	243,270	515,130	121,518
1924	237,131	43,800	280,931	309	94,495	375,117	140,684
1925	252,832	46,800	299,632	273	171,980	471,339	157,579
1926	268,900	49,600	318,500	292	170,142	488,350	115,235
1927	289,909	50,100	340,009	323	109,850	449,536	143,871
1928	314,588	51,900	366,488	485	87,132	453,135	148,794
1929	327,566	54,500	382,066	239	100,352	482,179	174,483
1930	350,311	61,900	412,211	162	68,000	480,049	92,756
1931	372,228	66,100	438,328	274	36,772	474,826	119,939
1932	345,350	67,100	412,450	179	12,020	424,291	40,697
1933	364,721	64,200	428,921	19	43,554	472,456	130,256
1934	357,658	60,500	418.158	119	[5] 23,156	441,195	85,181

[1] Hair of angora goat, alpaca, and other like animals included in exports for all years, and in imports and reexports prior to 1914.
[2] In computing these figures, stocks not taken into consideration.
[3] Exports for fiscal year ended June 30 of the year shown.
[4] No transactions.
[5] Imports for consumption.

Bureau of Agricultural Economics. Production figures, 1910–13, from the National Association of Wool Manufacturers; beginning 1914, from the Bureau; imports and exports from the Bureau of Foreign and Domestic Commerce.

NOTE.—The total United States production is combing and clothing wool only.

Table 364.—*Wool, shorn: Estimated production by States, 1932–34*

State and division	Production			Number of fleeces [1]			Weight per fleece [2]		
	1932	1933	1934	1932	1933	1934	1932	1933	1934
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*Thousands*	*Thousands*	*Thousands*	*Pounds*	*Pounds*	*Pounds*
Maine	444	384	378	74	64	62	6.0	6.0	6.1
New Hampshire	101	88	90	16	14	14	6.3	6.3	6.4
Vermont	238	208	211	35	32	31	6.8	6.5	6.8
Massachusetts	59	59	53	10	10	9	5.9	5.9	5.9
Rhode Island	12	12	12	2	2	2	5.9	6.0	6.0
Connecticut	50	50	48	9	9	8	5.6	5.6	6.0
New York	2,736	2,701	2,775	380	370	375	7.2	7.3	7.4
New Jersey	36	37	38	6	6	6	6.0	6.2	6.3
Pennsylvania	3,270	3,411	3,589	436	461	485	7.5	7.4	7.4
North Atlantic	6,946	6,950	7,194	968	968	992	7.2	7.2	7.3
Ohio	15,455	15,810	16,506	1,908	1,928	1,965	8.1	8.2	8.4
Indiana	4,782	4,599	4,800	655	630	640	7.3	7.3	7.5
Illinois	4,559	5,749	4,468	619	818	585	7.4	7.0	7.6
Michigan	8,282	7,840	7,856	1,010	980	958	8.2	8.0	8.2
Wisconsin	3,145	2,774	2,664	425	380	365	7.4	7.3	7.3
East North Central	36,223	36,772	36,294	4,617	4,736	4,513	7.8	7.8	8.0
Minnesota	6,638	6,814	7,137	885	885	915	7.5	7.7	7.8
Iowa	7,901	7,410	7,898	1,013	938	975	7.8	7.9	8.1
Missouri	7,048	7,351	7,384	1,054	1,109	1,082	6.7	6.6	6.8
North Dakota	7,636	7,056	6,972	920	840	840	8.3	8.4	8.3
South Dakota	8,768	9,200	9,960	1,096	1,150	1,245	8.0	8.0	8.0
Nebraska	1,885	2,731	2,311	254	366	308	7.4	7.5	7.5
Kansas	3,168	3,461	3,328	463	505	467	6.8	6.9	7.1
West North Central	43,044	44,023	44,990	5,685	5,793	5,832	7.6	7.6	7.7
North Central	79,267	80,795	81,284	10,302	10,529	10,345	7.7	7.7	7.9
Delaware	24	24	18	4	4	3	6.0	6.0	6.0
Maryland	570	583	573	92	94	94	6.2	6.2	6.1
Virginia	2,185	2,166	2,012	446	442	428	4.9	4.9	4.7
West Virginia	2,994	3,021	2,870	565	581	552	5.3	5.2	5.2
North Carolina	346	360	352	77	80	75	4.5	4.5	4.7
South Carolina	48	48	48	12	12	12	4.0	4.0	4.0
Georgia	112	112	108	31	31	31	3.6	3.6	3.5
Florida	115	114	115	37	38	37	3.1	3.0	3.1
South Atlantic	6,394	6,428	6,096	1,264	1,282	1,232	5.1	5.0	4.9
Kentucky	4,250	4,170	4,238	850	834	865	5.0	5.0	4.9
Tennessee	1,535	1,621	1,487	365	377	354	4.2	4.3	4.2
Alabama	144	151	126	40	42	35	3.6	3.6	3.6
Mississippi	257	257	263	78	78	73	3.3	3.3	3.6
Arkansas	220	230	212	49	51	46	4.5	4.5	4.6
Louisiana	403	402	371	112	115	103	3.6	3.5	3.6
Oklahoma	1,102	1,154	1,312	145	148	160	7.6	7.8	8.2
Texas	57,105	74,800	60,485	7,050	7,875	7,608	8.1	9.5	8.0
South Central	65,014	82,785	68,494	8,689	9,520	9,244	7.5	8.7	7.4
Montana	32,300	33,276	35,966	3,400	3,540	3,707	9.5	9.4	9.7
Idaho	16,500	17,372	18,445	1,940	2,020	2,170	8.5	8.6	8.5
Wyoming	31,513	29,808	33,212	3,463	3,240	3,496	9.1	9.2	9.5
Colorado	12,320	12,774	13,122	1,600	1,539	1,661	7.7	8.3	7.9
New Mexico	16,884	17,430	17,136	2,520	2,490	2,520	6.7	7.0	6.8
Arizona	5,220	4,988	4,980	870	860	830	6.0	5.8	6.0
Utah	18,160	17,630	17,512	2,270	2,050	1,990	8.0	8.6	8.8
Nevada	7,125	6,708	6,358	950	860	883	7.5	7.8	7.2
Washington	5,506	5,640	6,208	605	613	640	9.1	9.2	9.7
Oregon	17,982	18,105	19,775	2,220	2,130	2,273	8.1	8.5	8.7
California	24,219	24,032	21,876	3,370	3,128	3,209	7.2	7.68	6.82
Western	187,729	187,763	194,590	23,208	22,470	23,379	8.1	8.4	8.3
United States	345,350	364,721	357,658	44,431	44,769	45,192	7.77	8.15	7.91

[1] Include fleeces taken at commercial feeding plants. California figures include some fleeces taken from early lambs.

[2] In States where sheep are shorn twice a year, principally Texas and California, this figure covers wool per head of sheep shorn and not weight per fleece.

Bureau of Agricultural Economics: estimates of the Crop Reporting Board.

TABLE 365.—*Wool: Estimated production in specified countries, average 1926–30, annual 1929–34*

Country	Average, 1926–30	1929	1930	1931	1932	1933	1934 [1]
SOUTHERN HEMISPHERE	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Australia	926.1	937.6	912.1	1,006.6	1,061.7	975.6	[2] 1,010.0
New Zealand [3] [4]	266.4	272.9	271.1	282.8	288.4	300.5	[5] 307.0
Chili	26.7	[3] 24.7	26.7	26.3	[5] 25.9	25.7	----
Argentina [6]	332.8	312.0	334.0	364.0	340.0	348.0	366.0
Uruguay [3]	140.1	151.1	152.6	[7] 106.0	[7] 110.2	[7] 104.7	115.0
Union of South Africa [8]	294.1	303.8	305.0	306.0	316.3	274.0	245.0
Total 5 countries reporting to 1934	1,959.5	1,977.4	1,974.8	2,065.4	2,116.6	2,002.8	2,043.0
NORTHERN HEMISPHERE							
North America:							
United States:							
Shorn	310.3	327.6	350.3	372.2	345.4	364.7	357.7
Pulled [9]	53.6	54.5	61.9	66.1	67.1	64.2	(60.5)
Total	363.9	382.1	412.2	438.3	412.5	428.9	418.2
Canada	19.5	20.3	21.0	20.4	20.5	19.3	19.5
Europe:							
United Kingdom (England and Wales, Scotland, and Northern Ireland)	111.2	110.4	111.0	113.0	119.0	120.0	110.0
Irish Free State	18.0	[10] 18.6	[10] 18.9	[10] 19.3	[10] 19.6	[10] 19.6	[5] 17.0
Norway	5.6	5.0	5.2	5.5	5.7	[5] 5.8	6.0
France	46.5	46.1	45.2	44.1	43.2	43.0	[5] 42.4
Spain [11]	73.7	73.2	(66.0)	66.1	[5] 70.0	----	----
Italy [11]	53.3	49.6	47.9	44.0	[10] 42.0	----	----
Germany	34.8	31.9	[5] 30.6	[5] 30.8	[5] 30.8	30.0	[5] 29.8
Czechoslovakia [11]	3.7	3.7	3.7	2.7	2.3	2.0	2.1
Hungary	12.2	(11.5)	13.0	12.8	8.8	[5] 8.0	[5] 8.0
Yugoslavia [5]	28.3	28.0	28.0	28.8	30.5	30.8	31.1
Greece	14.0	[5] 15.6	[5] 12.2	14.6	14.9	16.0	[5] 15.6
Rumania [11]	66.9	65.5	63.6	65.1	62.7	62.4	----
Poland [5]	9.5	10.4	9.6	9.8	9.5	9.6	[5] 9.6
Latvia	3.5	3.4	3.3	3.3	3.6	4.1	[5] 6.5
Total 13 countries reporting to 1934	287.3	284.6	280.7	284.7	287.9	288.9	278.1
Africa and Asia: [12]							
Algeria	41.9	47.2	49.3	28.1	39.3	[5] 39.3	[5] 41.2
Turkey	9.9	5.0	14.1	14.8	10.2	14.0	[13] 12.0
Total 17 Northern Hemisphere countries reporting to 1934	722.5	739.2	777.3	786.3	770.4	790.4	769.0
Total 22 Northern and Southern Hemisphere countries reporting to 1934	2,682.0	2,716.6	2,752.1	2,851.7	2,887.0	2,793.2	2,812.0
Estimated world total excluding Union of Soviet Socialist Republics and China [14]	3,225.0	3,251.0	3,286.0	3,387.0	3,412.0	[15] 3,310.0	----
Union of Soviet Socialist Republics	362.9	394.0	306.0	[16] 212.0	[16] 142.0	[16] 138.0	[16] 142.0
China [17]	78.0	78.0	78.0	78.0	78.0	----	----

[1] Preliminary.
[2] Estimate of the National Council of Wool Selling Brokers of receipts for first 8 months of season.
[3] Estimates based on exports alone or exports, stocks, and domestic consumption and any other available information.
[4] Years 1924 to 1926 supplied by the Empire Marketing Board. Years 1927–28 to 1932–33 Official Yearbook of New Zealand 1934 and Monthly Abstract of New Zealand Statistics, August 1934. The estimates of Dalgety & Co. used formerly are as follows in millions of pounds, with scoured wool included at its scoured weight: Average 1926–30, 235.6; 1929, 241.8; 1930, 265–7; 1931, 265.5; 1932, 265.5; 1933, 262.7.
[5] Estimates based on sheep numbers at date nearest shearing and other available data.
[6] Estimates of the Buenos Aires branch of the First National Bank of Boston, based on exports, stocks, and domestic consumption except that production for 1931 and 1932 have been revised upward provisionally to take care of excess exports in 1932–33.
[7] Preliminary estimate. Reports of increase range from 5 to 15 percent.
[8] Estimates of C. C. Taylor, formerly United States agricultural attaché in South Africa.
[9] Published as reported by pulleries and is mostly washed. The Bureau of the Census considers 1 pound of pulled wool the equivalent of 1½ pounds of grease.
[10] Estimates of the Imperial Economic Committee (formerly Empire Marketing Board).
[11] Revisions based on recent census figures of wool production or of sheep numbers.
[12] Estimates for Asiatic countries rough approximations only.

(Footnotes continued on p. 589)

TABLE 365—*Wool: Estimated production in specified countries, average 1926–30, annual 1929–34*—Continued

Footnotes—Continued

[13] Provisional estmate based on prospects of a 15 to 20 percent reduction in 1934, due to losses of sheep in Roumelia and Anatolia.

[14] Totals subject to revision. Few countries publish official estimates of wool production. In the absence of official figures for many countries various estimates have been used. Some have been furnished by United States Government representatives abroad and others have been based on reports of sheep numbers, average fleece weights, and any other available data. For some principal exporting countries the figures are seasonal exports alone, or estimates derived from exports, carry-over, and domestic consumption. In the case of most Asiatic countries the figures are rough commercial estimates.

[15] Estimate based on production in 34 countries as compared with 1932.

[16] Estimate based on sheep numbers and average yield as derived from official estimates for recent years. The Union of Soviet Socialist Republics program called for 353,000,000 pounds in 1931 according to the Economic Handbook of the Soviet Union, but this estimate appears much too large considering the decrease in sheep numbers since 1929.

[17] Unofficial estimate based on sheep numbers in 1932. Owing to poor marketing conditions in recent years exports of sheep's wool not reliable index of production.

Bureau of Agricultural Economics.

This table includes wool shorn during the calendar year in the Northern Hemisphere and that shorn during the season beginning July 1 or Oct. 1 of the given calendar year in the Southern Hemisphere, the bulk being shorn during the last 6 months of the given calendar year. Pulled wool is included in the total for most important countries at its grease equivalent. Figures in parentheses are interpolated or carried forward. See Foreign Crops and Markets annual wool review in May or June 1934 for table showing all countries and monthly World Wool Prospects for current revisions.

TABLE 366.—*Wool, shorn: Average price per pound received by producers, United States, 1925–34*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	42.8	43.2	43.0	40.8	36.9	35.7	39.4	38.1	37.8	37.2	37.8	39.5	39.6
1926	38.9	37.7	34.7	33.2	32.0	31.4	31.9	31.9	32.6	31.6	31.6	30.1	33.9
1927	30.9	31.1	31.3	30.4	30.1	30.2	30.7	31.2	31.2	30.9	31.1	32.0	30.6
1928	33.2	34.4	35.4	35.6	37.0	38.7	37.6	37.0	36.5	36.0	35.9	35.6	36.4
1929	35.9	35.9	35.5	33.8	31.3	30.2	29.4	29.2	29.0	28.6	28.5	27.8	30.2
1930	27.4	25.9	23.7	21.4	19.6	19.2	19.2	19.8	20.2	19.6	19.0	18.4	19.5
1931	17.4	16.4	15.9	15.6	14.4	13.0	12.7	13.1	13.2	12.5	13.1	12.9	13.5
1932	12.5	13.0	12.5	11.0	8.8	7.2	7.0	7.4	9.1	9.5	9.4	9.2	8.7
1933	8.9	8.8	8.9	10.1	17.7	21.3	22.4	22.5	23.0	23.6	23.8	24.2	20.6
1934	24.6	25.4	26.9	26.2	23.4	21.9	21.4	20.4	19.5	19.3	19.2	18.5	[1] 22.3

[1] Preliminary.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of sheep, Jan. 1, to obtain a price for the United States. Average for the year obtained by weighting State price averages for the calendar year. Data for earlier years in 1928 Yearbook, table 422. Only monthly prices are comparable.

TABLE 367.—*Wool: Average price per pound in Boston market, 1925–34*

SCOURED BASIS, TERRITORY, GRADES 64's, 70's, 80's (FINE STRICTLY COMBING)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	168	164	153	138	126	130	137	132	129	128	131	131	139
1926	127	124	118	116	112	110	116	116	116	116	114	110	116
1927	110	110	110	109	108	108	111	111	111	112	112	112	110
1928	116	116	116	117	119	120	120	115	112	112	113	114	116
1929	114	110	108	104	100	97	94	94	93	90	88	84	98
1930	82	79	78	76	75	76	76	76	76	75	73	72	76
1931	68	66	66	66	64	62	62	64	62	59	59	59	63
1932	58	56	54	49	44	38	36	41	48	48	47	45	47
1933	44	44	46	48	62	70	77	79	82	83	84	85	67
1934	86	87	87	86	85	84	84	76	76	76	76	76	82

SCOURED BASIS, TERRITORY, GRADE 56's (THREE-EIGHTHS BLOOD STRICTLY COMBING)

1925	136	136	125	109	96	99	105	101	102	102	108	109	111
1926	103	99	93	91	89	89	90	90	91	93	93	91	92
1927	90	90	90	90	88	88	90	91	91	94	94	94	91
1928	97	99	100	106	107	108	107	103	104	104	104	104	104
1929	104	104	101	95	89	88	88	90	90	89	87	82	92
1930	75	70	67	64	62	62	62	62	62	60	59	58	63
1931	55	52	51	51	48	46	49	51	51	48	48	48	50
1932	49	49	46	42	37	32	30	34	43	42	41	39	40
1933	38	37	38	41	56	63	70	72	76	78	79	82	61
1934	82	82	82	80	78	78	78	67	66	66	66	66	74

GREASE BASIS, OHIO AND SIMILAR, GRADE 56's (THREE-EIGHTHS BLOOD STRICTLY COMBING)

1925	70	69	66	55	46	49	53	52	50	52	54	54	56
1926	54	53	49	46	44	43	44	44	44	45	46	45	46
1927	45	45	45	44	42	42	43	44	45	46	47	48	45
1928	50	52	52	53	55	57	56	55	55	55	56	56	54
1929	56	55	54	50	45	44	45	45	45	45	44	42	48
1930	39	36	34	32	29	30	30	30	30	30	29	28	31
1931	26	25	24	23	22	22	22	23	24	24	24	24	24
1932	24	23	22	20	17	15	14	17	22	22	20	20	20
1933	20	20	19	20	29	33	34	36	39	41	41	42	31
1934	42	42	42	39	34	32	32	32	31	30	30	28	35

Bureau of Agricultural Economics. Prices from the livestock and meat reporting service of the Bureau. Earlier data in 1931 Yearbook, table 420.

TABLE 368.—*Wool, grades 56's, 64's–67's: Average price per pound at London, clean basis, 1925–34*

GRADE 56's

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	105.00	90.80	89.00	80.90	72.80	73.85	74.90	70.75	66.60	66.60	66.60	66.60	77.03
1926	60.80	60.80	60.80	59.80	58.30	56.80	58.80	59.80	60.80	59.80	57.00	58.80	59.36
1927	58.80	68.00	71.00	66.00	66.90	67.40	67.90	68.40	68.90	70.95	73.00	75.00	68.52
1928	77.00	80.00	81.10	79.55	78.00	77.50	77.00	74.00	71.00	70.00	73.00	74.00	76.01
1929	75.00	69.95	63.90	61.80	58.80	56.75	54.70	52.70	50.69	46.64	50.69	50.69	57.09
1930	40.55	40.55	34.47	35.48	37.51	37.00	36.00	34.50	32.44	30.42	26.36	26.36	34.30
1931	21.29	24.33	29.91	28.39	26.36	25.35	24.84	23.32	21.29	20.26	24.02	21.09	24.20
1932	20.73	23.04	21.61	19.92	18.38	18.23	19.60	20.64	21.69	20.52	19.79	19.13	20.27
1933	20.66	21.03	19.67	21.63	24.99	28.00	32.94	33.77	36.93	38.90	51.50	51.16	31.76
1934	58.91	54.52	52.00	51.53	48.40	42.59	37.81	35.88	33.29	35.00	33.26	35.03	43.18

GRADES 64's–67's

1925	140.10	130.00	119.70	115.95	112.20	112.60	113.00	110.00	107.00	108.90	111.00	101.00	115.12
1926	97.30	97.30	97.30	98.10	97.70	97.30	94.30	94.80	95.30	93.30	92.75	90.75	95.51
1927	89.20	94.00	95.30	94.30	95.30	95.80	96.30	96.85	97.40	98.40	99.40	99.40	95.97
1928	101.40	102.00	103.40	102.40	101.40	101.40	101.40	98.35	95.30	90.00	93.30	91.20	98.46
1929	91.20	90.00	85.20	83.00	79.00	76.25	73.50	70.00	66.91	64.88	63.87	62.86	75.55
1930	54.75	54.75	50.69	52.72	55.76	54.70	52.70	51.70	50.69	50.69	44.61	41.57	51.28
1931	34.47	38.53	44.61	42.58	42.58	40.55	39.54	37.51	34.47	30.79	31.78	26.00	36.95
1932	29.31	30.24	29.57	28.91	27.56	27.35	28.10	29.33	31.10	29.72	27.98	27.32	28.87
1933	28.71	29.94	28.25	30.95	35.23	41.79	52.31	52.53	56.36	54.46	68.66	67.15	45.53
1934	71.53	69.20	71.10	71.39	68.08	61.52	56.71	51.71	45.78	47.35	45.73	45.34	58.79

Bureau of Agriculture Economics. These data were obtained from prices given by Kreglinger & Fernau for the opening and closing of each series of the London wool sales. For months when no sales were held the figures are interpolations of nearest actual prices. Conversions at monthly average rate of exchange as given in Federal Reserve Bulletins to December 1925, and October 1931 to December 1934; others at par.

TABLE 369.—*Wool: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Australia[2]	739,123	3,990	812,265	1,170	855,181	2,153		
Argentina	294,973	302	310,252	84	289,878	101	349,934	71
Union of South Africa	254,431	576	242,092	612	379,095	1,006	288,151	1,149
New Zealand	220,228	103	211,719	6	238,179	27	286,280	3
Uruguay	117,856	0	144,572	0	95,120	0		0
China	58,272	568	35,310	747	[3] 8,130	[3] 270	34,180	736
British India	50,373	27,843	39,785	16,118	30,903	12,783	49,017	18,097
Chile	26,196	435	22,377	163	25,058	52	24,153	3
Algeria	24,047	3,632	11,066	1,479	7,001	1,466	10,720	2,108
Morocco	13,345	0	2,536	0	369	0	777	0
Irish Free State	12,706	1,282	10,877	926	9,938	945	18,745	791
Iran[4]	11,918	1,380	11,543	1	10,457	8		
Hungary	11,715	1,643	7,194	1,616	2,318	1,180	3,968	3,285
Brazil	11,021		15,412		3,907		5,500	
Peru	10,760	1	9,287	1	9,213	3	12,910	
Spain	9,715	4,918	2,677	10,643	2,310	14,945	3,359	9,090
Egypt	3,997	[5] 127	3,807	[5] 151	2,469	2	3,570	13
Tunis	2,982	1,383	1,172	491	651	600	1,242	927
Total	1,873,658	47,929	1,892,943	33,906	1,970,177	35,541	1,092,506	36,273
PRINCIPAL IMPORTING COUNTRIES								
France	53,286	633,028	56,971	570,223	39,415	563,167	53,359	681,853
United Kingdom	54,037	473,061	35,771	600,730	41,911	612,214	69,502	623,739
Germany	24,109	361,447	30,476	326,575	14,363	318,666	14,091	351,778
United States	322	288,346	274	158,385	179	56,535	19	178,928
Belgium	19,091	135,887	33,121	137,189	58,352	147,107	139,737	213,040
Italy	7,188	99,134	6,985	105,094	3,001	158,804	5,463	189,335
Japan	0	93,489	0	189,714	0	205,178	0	240,640
Union of Soviet Socialist Republics	[3] 4,024	46,095	0	67,747	0	57,141	13	62,910
Czechoslovakia	3,381	35,889	2,422	40,220	1,375	32,623	1,916	32,414
Poland	1,398	30,255	261	35,345	107	29,321	212	37,549
Switzerland	45	17,404	643	18,402	240	22,016	320	19,150
Austria	973	16,490	158	13,127	77	16,729	317	19,554
Canada	7,307	13,930	4,770	10,849	3,712	8,717	11,258	13,761
Sweden	241	10,826	217	11,735	309	12,431	419	12,540
Netherlands	2,830	10,518	3,062	16,335	2,990	16,613	5,746	17,653
Yugoslavia	117	5,559	75	6,535	195	2,895	189	4,596
Rumania	1,287	[6] 4,011	971	3,204	393	1,601		
Denmark	355	2,808	142	4,041	169	4,650	291	5,215
Finland		2,806		2,269		3,391		4,564
Bulgaria	3	2,699	18	3,685	0	3,928	0	1,764
Greece	641	2,063	300	2,901	510	1,929	882	2,935
Norway	601	1,812	237	1,835	129	1,995	439	1,807
Total	181,236	2,287,557	176,874	2,326,140	167,427	2,277,651	304,173	2,715,725

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Does not include Manchuria after June 30, 1932.
[4] Figures for Iran are for 12 months ended Mar. 21 of the year following year shown for 1925-29 average; beginning with 1931 figures are for the 12 months ended June 21 of the year following year shown.
[5] Excess of reexports over imports.
[6] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.
"Wool" in this table includes washed, unwashed, scoured, pulled wool, slipe, also hair—camel's, mohair, angora goat, cashmere goat, and alpaca. The following items have been considered as not within this classification: Carded, combed, dyed wool, flocks; sheep, lamb, and goat skins with hair on, mill waste, noils, and tops.

TABLE 370.—*Goats and mohair: Estimates of goats clipped, mohair produced, and average clip per goat (principal producing States), 1932–34*

State	Goats clipped			Mohair (including kid hair) produced			Average clip per goat clipped [1]		
	1932	1933	1934 [2]	1932	1933	1934 [2]	1932	1933	1934 [2]
	Thousands	*Thousands*	*Thousands*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Pounds*	*Pounds*	*Pounds*
Texas [3]	3,421	3,342	2,795	14,000	13,700	10,342	4.2	4.1	3.7
New Mexico	250	245	220	1,000	1,020	925	4.0	4.2	4.2
Arizona	200	160	150	760	550	510	3.8	3.4	3.4
California	37	32	35	130	112	126	3.5	3.5	3.6
Oregon	115	87	87	460	350	348	4.0	4.0	4.0
Missouri	66	71	72	145	163	158	2.2	2.3	2.2
Total	4,089	3,937	3,359	16,495	15,895	12,409	4.0	4.0	3.7

[1] In States where goats are clipped twice a year figures include both spring and fall clip.
[2] Preliminary.
[3] Most goats clipped twice a year. In Texas, kids are clipped in fall of year of birth. Figures include both goats and kids clipped.

Bureau of Agricultural Economics; estimates of Crop Reporting Board.

TABLE 371.—*Imported meat and meat food products, Federally inspected and passed, United States, 1925–34*

Year ended June 30	Chilled and frozen fresh meats		Canned and cured meats	Other meat products	Total weight
	Beef	Other			
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1925	5,612,600	11,827,557	12,857,043	2,877,640	33,174,840
1926	9,975,359	12,402,230	19,258,401	3,144,968	44,780,958
1927	14,956,143	22,508,681	43,714,607	5,454,741	86,634,172
1928	38,168,121	18,880,547	63,189,480	12,102,635	132,340,783
1929	53,085,288	15,704,658	89,511,853	11,563,215	169,865,014
1930	23,909,708	6,783,637	98,128,169	8,065,195	136,886,709
1931	2,612,713	1,314,170	23,854,583	5,651,509	33,423,975
1932	540,141	1,402,900	25,465,159	3,530,632	30,938,832
1933	404,510	942,227	33,254,553	2,644,628	37,245,918
1934	142,181	225,996	42,842,437	886,371	44,096,985

Bureau of Animal Industry.

TABLE 372.—*Meat and meat products: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Argentina	2,028,126	465	1,544,619	348	1,436,879	101	1,429,967	100
United States	1,421,054	147,765	978,632	51,672	865,549	51,765	945,101	68,037
Denmark	640,468	26,692	1,040,604	18,221	1,025,304	12,691	797,034	10,047
Netherlands	534,982	206,537	480,630	165,480	352,909	97,030	274,400	80,605
New Zealand	442,571	1,102	519,769	689	581,727	790	651,235	658
Uruguay	396,117	15	268,654	0	229,642	0		0
Australia [2]	380,162	6,691	350,546	7,411	446,075	1,910	434,847	2,118
Canada	144,720	27,305	34,147	13,962	62,440	10,037	99,153	13,279
Brazil	131,003	10,511	184,108	2,786	116,866	695	136,931	918
Irish Free State	105,959	66,964	94,144	65,210	65,472	29,562	69,617	2,215
Poland	71,019	45,836	189,409	6,585	146,344	3,085	109,099	2,433
Sweden	61,961	46,886	91,086	47,287	67,750	46,371	64,992	53,741
China	48,376	3,672	48,167	3,436	[3] 22,486	[3] 4,558	24,302	3,959
Chile	40,829	4,206	29,892	2,776	34,426	204	29,579	
Hungary	33,182	6,733	20,116	6,276	13,270	5,336	17,996	5,662
Yugoslavia	27,751	9,664	17,763	8,715	16,800	10,906	14,926	9,717
Union of South Africa	24,581	15,118	23,648	19,053	17,224	6,377	24,155	11,750
Rumania	21,413	1,948	13,094	2,017	5,987	1,111		
Estonia	6,888	1,455	9,500	514	10,214	214	10,465	172
Total	6,561,162	629,565	5,938,528	422,438	5,517,364	282,743	5,133,799	265,411
Total beef	2,874,958	294,287	2,182,744	213,473	1,937,285	138,988	1,723,900	135,760
Total pork	2,285,198	150,691	2,338,657	78,487	2,236,653	41,023	2,032,514	17,783
Total mutton and lamb	609,574	1,419	742,460	853	781,282	530	747,362	392
Total unclassified	791,432	183,168	674,667	129,625	562,144	102,202	630,023	111,476
Total	6,561,162	629,565	5,938,528	422,438	5,517,364	282,743	5,133,799	265,411
PRINCIPAL IMPORTING COUNTRIES								
United Kingdom	127,797	3,827,365	115,615	4,217,133	93,627	1,061,931	41,561	3,846,309
Germany	42,080	838,653	64,497	463,257	34,210	518,461	27,892	423,333
France	62,427	299,085	57,764	299,523	50,537	167,541	44,840	163,871
Italy	18,680	233,627	17,817	168,854	13,131	166,485	11,848	153,922
Belgium	60,122	213,736	33,429	204,809	19,728	152,098	16,935	150,295
Cuba	750	180,592	356	88,355	491	54,416		
Austria	8,495	124,462	11,577	92,526	4,007	41,260	4,207	28,852
Czechoslovakia	9,837	101,778	6,333	80,489	2,987	58,466	2,399	44,423
Japan	115	68,636	146	76,479	296	49,730	347	24,608
Mexico	7,230	82,698	93	58,351	61	42,666	27	39,120
Norway	3,107	36,970	2,503	21,561	5,318	16,488	6,849	11,074
Spain	6,116	31,148	5,367	32,240	5,343	39,643	5,056	51,254
Switzerland	3,383	30,242	2,829	32,615	2,738	31,685	2,170	29,582
Finland	4,565	19,972	6,823	8,401	6,473	8,157	7,489	9,569
Philippine Islands	0	19,812	43	17,529	1	15,760		
British Malaya	2,336	15,306	1,335	11,906	1,087	9,063	980	8,450
British India	1,254	13,250	775	15,047	685	16,868	716	15,338
Peru	590	12,912	1,340	3,439	897	2,942	1,275	
Algeria	1,820	12,557	873	17,314	1,658	14,211	2,383	14,322
Egypt	144	7,603	98	3,647	105	3,061	83	3,394
Total	360,848	6,170,404	329,613	5,913,475	243,380	5,470,932	177,057	5,017,716
Total beef	126,843	2,696,113	110,878	2,197,605	76,978	877,949	41,190	1,816,045
Total pork	32,980	2,176,466	38,046	2,334,735	20,668	2,293,717	42,697	1,951,154
Total mutton and lamb	4,185	680,356	3,415	871,087	1,196	829,999	1,024	802,840
Total unclassified	196,840	617,469	177,274	510,048	144,538	1,469,267	92,146	447,677
Total	360,848	6,170,404	329,613	5,913,475	243,380	5,470,932	177,057	5,017,716

[1] Preliminary.
[2] Year ended June 30.
[3] Does not include Manchuria after June 30, 1932.

Bureau of Agricultural Economics; official sources.

TABLE 373.—*Meat and meat food products prepared under Federal inspection, 1925–34*

Year ended June 30	Pork placed in cure	Sausage	Canned meats	Lard	Lard compounds and substitutes	Oleo products	Oleomargarine	All other products	Total
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1925	3,176,714	736,877	214,650	1,733,933	458,518	287,271	133,836	2,170,278	8,912,077
1926	2,850,675	771,741	214,166	1,598,754	543,913	275,636	148,331	2,007,854	8,411,070
1927	2,920,206	765,074	248,459	1,691,344	535,175	280,641	148,384	1,971,827	8,561,110
1928	3,036,063	778,311	255,379	1,846,796	472,839	237,506	152,085	2,201,933	8,980,912
1929	2,992,898	785,463	285,808	1,817,601	467,077	228,531	158,851	2,210,438	8,946,697
1930	2,981,864	783,629	303,094	1,807,144	433,495	223,889	159,413	2,268,407	8,960,935
1931	2,851,938	697,798	283,547	1,662,397	482,482	212,925	117,819	2,135,789	8,444,695
1932	2,760,367	663,644	240,882	1,715,349	411,935	197,495	86,717	2,213,493	8,289,882
1933	2,782,341	670,497	251,944	1,787,967	322,146	174,637	74,545	2,192,960	8,257,037
1934	2,786,042	760,434	361,502	1,682,523	323,494	170,117	87,333	2,355,128	8,526,563

Bureau of Animal Industry.

The above figures do not represent production, as a product may be inspected more than once in course of further manufacture.

TABLE 374.—*Livestock: Number of animals slaughtered under Federal inspection and number of whole carcasses condemned,*[1] *1925–34*

Year ended June 30	Cattle		Calves		Sheep and lambs		Goats		Hogs		Horses		Total slaughter
	Total	Condemned	Total	Condemned	Total	Condemned	Total	Condemned	Total	Condemned	Total	Condemned	
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1925	9,774	92.1	5,185	11.1	12,203	12.7	27	0.1	48,460	180.4	12	0.0	75,660
1926	10,098	103.6	5,312	11.9	12,354	14.5	43	.1	40,443	143.0	40	.1	68,289
1927	10,050	83.5	5,080	10.6	12,894	16.4	30	.1	42,650	173.6	43	.2	70,747
1928	9,040	69.4	4,774	9.9	12,984	15.4	20	.1	48,347	154.2	107	.3	75,273
1929	8,284	61.9	4,526	8.9	13,769	20.1	21	.1	47,164	139.4	117	.4	73,881
1930	8,281	59.5	4,491	9.5	15,307	22.9	22	.1	46,689	135.4	136	.5	74,926
1931	8,209	52.4	4,732	9.1	17,300	18.5	9	.1	44,021	121.8	135	.7	74,406
1932	7,975	53.8	4,605	10.2	18,660	17.6	8	.0	45,852	139.9	100	.3	77,200
1933	7,736	54.0	4,548	12.4	17,284	16.6	7	.0	45,698	132.6	50	.2	75,323
1934	9,653	81.6	5,673	17.8	16,429	22.3	7	.0	45,773	153.2	33	.3	77,569

[1] The numbers of condemned carcasses are expressed in thousands and tenths; that is, the last figure represents hundreds. These figures do not include parts of carcasses, data concerning which may be obtained from the Bureau of Animal Industry.

Bureau of Animal Industry.

TABLE 375.—*Hides, packer: Average price per pound at Chicago, 1925–34*

Calendar year	Steers					Cows			Bulls	
	Heavy native	Heavy Texas	Light Texas	Butt branded	Colorados	Heavy native	Light native	Branded	Native	Branded
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	15.96	15.08	14.06	15.16	14.12	14.82	14.62	13.30	11.98	10.29
1926	14.08	13.38	12.67	13.34	12.82	12.71	13.11	12.05	9.98	8.50
1927	19.28	18.21	17.49	18.23	17.74	18.08	18.66	17.26	14.09	12.88
1928	23.85	22.91	22.26	22.95	22.26	22.96	22.63	21.79	17.64	16.62
1929	16.98	16.08	15.16	16.11	15.39	15.86	15.75	14.86	11.42	10.17
1930	13.87	13.76	12.55	13.73	13.18	11.78	11.71	11.19	8.30	7.30
1931	9.06	8.96	8.34	8.96	8.48	8.04	8.43	7.76	5.53	4.78
1932	6.04	5.92	5.14	5.91	5.47	5.17	5.63	5.20	3.86	3.19
1933	9.67	9.66	9.09	9.66	9.18	8.89	9.28	8.78	6.93	6.18
1934	9.92	9.60	8.60	9.60	9.10	8.70	8.72	8.25	6.45	5.69

Bureau of Agricultural Economics. Compiled from annual reports of the Chicago Board of Trade.

TABLE 376.—*Hides, country: Average price per pound at Chicago, 1925–34*

Calendar year	Extremes	Heavy steers	Heavy cows	No. 1 buffs	No. 2 buffs	Bulls	Country packer brands	Country brands	No. 1 calfskins	No. 1 kipskins
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	14.41	12.94	11.64	12.26	11.25	9.46	12.52	10.54	21.88	18.12
1926	13.46	11.63	9.54	10.70	9.70	8.03	10.52	9.00	18.02	16.12
1927	18.60	16.02	14.85	16.26	15.26	11.49	15.54	13.89	20.47	19.96
1928	22.04	18.53	18.05	19.71	18.71	14.88	19.18	17.38	27.84	25.23
1929	14.98	12.09	11.55	12.82	11.82	8.92	11.88	10.80	20.72	18.72
1930	11.18	8.50	8.40	9.14	8.14	5.90	9.49	7.73	17.43	15.92
1931	7.77	6.02	5.61	6.32	5.32	3.99	6.70	5.05	11.81	10.42
1932	4.88	3.78	3.40	4.15	3.15	2.39	3.32	2.85	6.38	6.28
1933	8.13	6.32	5.08	7.23	6.23	4.64	5.50	5.12	12.58	11.72
1934	8.05	6.02	5.67	6.83	5.83	4.17	5.50	5.13	11.86	10.06

Bureau of Agricultural Economics. Compiled from annual reports of the Chicago Board of Trade. Data for earlier years in 1928 Yearbook, table 435.

TABLE 377.—*Horses and mules: Number and value on farms, Jan. 1, and yearly weighted average price received by producers, United States, 1910–35*

Year	Horses				Mules			
	Number [1]	Farm value		Weighted yearly price per head [2]	Number [1]	Farm value		Weighted yearly price per head [2]
		Per head [1]	Total			Per head [1]	Total	
	Thousands	*Dollars*	*1,000 dollars*	*Dollars*	*Thousands*	*Dollars*	*1,000 dollars*	*Dollars*
1910	19,833	108.03	2,142,524	138.20	4,210	120.20	506,049	
1911	20,277	111.46	2,259,981	130.10	4,323	125.92	544,359	
1912	20,509	105.94	2,172,694	108.30	4,362	120.51	525,657	
1913	20,567	110.77	2,278,222	130.60	4,386	124.31	545,245	
1914	20,962	109.32	2,291,638	124.50	4,449	123.85	551,017	
1915	21,195	103.33	2,190,102	123.40	4,479	112.36	503,271	
1916	21,159	101.60	2,149,786	126.10	4,593	113.83	522,834	
1917	21,210	102.89	2,182,307	127.40	4,723	118.15	558,006	
1918	21,555	104.24	2,246,970	116.60	4,873	128.81	627,679	
1919	21,482	98.45	2,114,897	111.90	4,954	135.83	672,922	
1920	20,092	96.48	1,938,447	91.50	5,656	148.25	838,530	
1921	19,366	84.54	1,637,181	76.30	5,772	117.37	677,475	
1922	18,760	71.05	1,332,822	75.00	5,827	88.99	518,558	
1923	18,123	70.51	1,277,873	69.30	5,895	86.86	512,067	
1924	17,365	65.42	1,135,967	70.70	5,908	85.89	507,435	87.60
1925	16,640	64.28	1,069,654	72.30	5,918	82.91	490,668	92.40
1926	16,067	65.32	1,049,442	68.80	5,903	81.51	481,153	84.10
1927	15,368	63.74	979,509	72.50	5,801	74.50	432,181	87.70
1928	14,768	66.68	984,763	72.00	5,647	79.79	450,585	88.60
1929	14,203	69.63	988,953	69.20	5,496	82.39	452,825	86.20
1930	13,684	69.86	955,964	59.20	5,366	83.76	449,480	70.20
1931	13,169	60.42	795,725	52.40	5,226	69.19	361,562	60.70
1932	12,621	53.20	671,457	55.10	5,120	60.56	310,058	62.10
1933	12,203	53.75	655,911	70.10	5,036	60.18	303,066	81.70
1934	11,963	66.30	793,155	77.90	4,925	81.54	401,596	94.40
1935 [3]	11,827	76.18	901,038		4,795	98.21	470,900	

[1] As reported for Jan. 1.
[2] Revised: Annual averages of prices, by States, weighted by number of animals coming 4 years of age in computing United States averages.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 378.—*Horses and mules:* [1] *Number on farms and farm value per head, by States, Jan. 1, 1933–35*

State and division	Horses						Mules					
	Number			Farm value per head [2]			Number			Farm value per head [2]		
	1933	1934	1935 [3]	1933	1934	1935	1933	1934	1935 [3]	1933	1934	1935
	Thousands	*Thousands*	*Thousands*	*Dol.*	*Dol.*	*Dol.*	*Thousands*	*Thousands*	*Thousands*	*Dol.*	*Dol.*	*Dol.*
Maine	51	48	47	104.00	116.00	135.00						
New Hampshire	17	16	16	90.00	95.00	106.00						
Vermont	47	46	45	90.00	107.00	131.00						
Massachusetts	22	21	20	101.00	106.00	133.00						
Rhode Island	4	4	4	90.00	95.00	125.00						
Connecticut	19	18	17	92.00	102.00	131.00						
New York	294	285	282	97.00	109.00	120.00	6	6	6	91.00	98.00	110.00
New Jersey	33	32	32	96.00	115.00	125.00	2	2	2	90.00	108.00	125.00
Pennsylvania	285	279	282	95.00	109.00	123.00	51	51	51	98.00	112.00	117.00
North Atlantic	772	749	745	95.92	108.86	123.15	59	59	59	97.29	110.63	116.86
Ohio	460	451	451	87.00	100.00	111.00	33	32	32	88.00	95.00	107.00
Indiana	412	404	400	72.00	82.00	98.00	82	84	81	77.00	87.00	105.00
Illinois	742	727	705	60.00	70.00	85.00	126	122	116	67.00	80.00	96.00
Michigan	366	362	366	91.00	105.00	114.00	6	6	6	91.00	107.00	113.00
Wisconsin	512	507	516	77.00	91.00	100.00	7	7	7	74.00	89.00	101.00
East North Central	2,492	2,451	2,438	75.01	87.06	99.38	254	251	242	73.76	85.06	101.22
Minnesota	760	745	738	57.00	69.00	78.00	15	15	15	60.00	73.00	86.00
Iowa	955	936	927	59.00	73.00	83.00	79	76	70	64.00	79.00	89.00
Missouri	551	551	551	45.00	59.00	70.00	288	274	255	60.00	76.00	89.00
North Dakota	532	521	510	46.00	55.00	54.00	8	8	8	45.00	57.00	62.00
South Dakota	552	524	498	39.00	48.00	55.00	17	15	15	47.00	60.00	64.00
Nebraska	676	665	645	46.00	58.00	64.00	88	81	73	56.00	72.00	80.00
Kansas	651	644	638	41.00	53.00	62.00	146	127	110	52.00	69.00	78.00
West North Central	4,677	4,586	4,507	48.64	60.71	68.52	641	596	546	57.65	73.83	84.63
North Central	7,169	7,037	6,945	57.81	69.89	79.36	895	847	788	62.22	77.16	89.72
Delaware	16	15	15	64.00	78.00	88.00	9	9	9	86.00	90.00	117.00
Maryland	89	85	85	68.00	81.00	99.00	28	28	28	89.00	103.00	122.00
Virginia	178	167	160	66.00	80.00	98.00	90	88	87	83.00	98.00	118.00
West Virginia	103	101	100	74.00	85.00	100.00	12	12	11	73.00	81.00	93.00
North Carolina	75	73	73	67.00	85.00	103.00	265	268	271	89.00	116.00	140.00
South Carolina	23	22	21	63.00	82.00	99.00	165	165	168	77.00	117.00	137.00
Georgia	33	32	31	50.00	78.00	92.00	326	333	333	69.00	112.00	135.00
Florida	18	18	19	59.00	68.00	79.00	42	42	40	74.00	99.00	117.00
South Atlantic	535	513	504	66.58	81.35	97.89	937	945	947	78.36	111.18	133.28
Kentucky	207	203	205	47.00	59.00	79.00	257	254	256	59.00	72.00	100.00
Tennessee	146	143	150	49.00	63.00	81.00	315	309	306	64.00	83.00	104.00
Alabama	55	53	54	45.00	64.00	73.00	322	325	319	65.00	91.00	112.00
Mississippi	86	85	90	39.00	52.00	64.00	347	344	337	58.00	78.00	96.00
Arkansas	116	116	118	35.00	47.00	56.00	319	306	300	51.00	66.00	80.00
Louisiana	103	99	100	32.00	40.00	45.00	180	176	171	56.00	70.00	83.00
Oklahoma	439	431	435	33.00	53.00	57.00	270	251	238	45.00	70.00	78.00
Texas	727	727	712	31.00	46.00	51.00	980	960	931	47.00	68.00	80.00
South Central	1,879	1,857	1,864	35.65	50.76	59.41	2,990	2,925	2,858	53.89	73.76	89.80
Montana	388	380	352	24.00	34.00	38.00	8	8	8	29.00	40.00	52.00
Idaho	186	182	184	35.00	47.00	62.00	7	7	7	36.00	54.00	74.00
Wyoming	157	149	142	26.00	36.00	44.00	4	4	4	41.00	54.00	62.00
Colorado	318	312	312	31.00	41.00	51.00	26	24	22	39.00	51.00	62.00
New Mexico	121	114	108	25.00	39.00	40.00	21	19	18	37.00	54.00	66.00
Arizona	72	73	73	32.00	41.00	45.00	12	12	12	39.00	53.00	63.00
Utah	83	81	81	46.00	59.00	64.00	3	3	3	40.00	50.00	65.00
Nevada	34	34	34	35.00	47.00	56.00	3	3	3	41.00	53.00	63.00
Washington	155	155	161	48.00	63.00	77.00	20	20	19	54.00	71.00	85.00
Oregon	154	154	154	47.00	55.00	69.00	14	13	13	50.00	58.00	75.00
California	180	173	168	54.00	70.00	79.00	37	36	34	58.00	73.00	87.00
Western	1,848	1,807	1,769	35.07	46.39	55.45	155	149	143	45.72	59.71	72.92
United States	12,203	11,963	11,827	53.75	66.30	76.18	5,036	4,925	4,795	60.18	81.54	98.21

[1] Including colts.
[2] Sum of total value of subgroups (classified by age), divided by total number and rounded to nearest dollar for States. Division and United States averages not rounded.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 379.—*Milk cows: Number and farm value per head in the United States, 1880–1935*

Year	Milk cows on farms		Year	Milk cows on farms		Year	Milk cows on farms	
	Number [1]	Farm value per head Jan. 1 [2]		Number [1]	Farm value per head Jan. 1 [2]		Number [1]	Farm value per head Jan. 1 [2]
	Thousands	*Dollars*		*Thousands*	*Dollars*		*Thousands*	*Dollars*
1880 [3]	*12,443*		1899	15,990	29.66	1918	21,021	67.37
1880	12,027	23.27	*1900* [3]	*17,136*		1919	21,219	74.68
1881	12,369	23.95	1900	15,253	30.18	*1920* [3]	*19,675*	
1882	12,612	25.89	1901	15,521	28.65	1920	21,455	81.51
1883	13,126	30.21	1902	15,787	27.91	1921	21,440	61.20
1884	13,501	31.37	1903	16,073	28.85	1922	21,822	48.69
1885	13,905	29.70	1904	16,459	27.90	1923	22,099	48.68
1886	14,235	27.40	1905	16,842	26.21	1924	22,288	49.94
1887	14,522	26.08	1906	17,277	28.12	*1925* [3]	*20,900*	
1888	14,856	24.65	1907	17,650	29.60	1925	22,505	48.38
1889	15,299	23.94	1908	17,937	29.29	1926	22,311	54.73
1890 [3]	*16,512*		1909	18,154	30.90	1927	22,159	59.24
1890	15,953	22.14	*1910* [3]	*20,625*		1928	22,129	73.47
1891	16,020	21.62	1910	18,206	33.70	1929	22,330	83.99
1892	16,416	21.40	1911	18,244	38.17	*1930* [3]	*21,124*	
1893	16,424	21.75	1912	18,312	37.62	1930	22,910	82.80
1894	16,487	21.77	1913	18,526	42.99	1931	23,576	57.10
1895	16,505	21.97	1914	18,930	51.51	1932	24,475	39.57
1896	16,138	22.55	1915	19,526	52.84	1933	25,285	29.26
1897	15,942	23.16	1916	20,064	51.49	1934	26,185	27.11
1898	15,841	27.45	1917	20,541	56.95	1935 [4]	25,100	30.38

[1] Prior to 1900, estimates for each 10-year period represent an index of annual changes applied to the census as a base on first report after census data were available. Figures for 1900 to 1919 are tentatively revised estimates of the Bureau of Agricultural Economics for numbers on Jan. 1. Figures from 1920 to 1931 are revised estimates made in 1932, based upon study of 1930 census report. Figures for 1900–1935 relate to "cows and heifers 2 years old and over Jan. 1, kept for milk."

[2] Values for 1880–99 relate to "milk cows." Data for 1900–1925 are an old series of values of "milk cows" adjusted to relate to "milk cows and heifers, 2 years old and over" on basis of relationship between the 2 series from 1926 to 1928. Conversion factor was 0.955 (base is old series). Data for 1926–35 are values relating to "milk cows and heifers 2 years old and over."

[3] Italic figures are from the census. Figures for census years 1880 and 1890 represent "milk cows"; 1900, "cows kept for milk 2 years and over"; 1910 "cows and heifers kept for milk, born before Jan. 1, 1909" (15½ months and over); 1920 "dairy cattle 2 years old and over kept mainly for milk production"; 1925 and 1930, "number of cows milked in 1924 and 1929." Census dates were June 1 from 1880 to 1900; Apr. 15, 1910; Jan. 1, 1920 and 1925; Apr. 1, 1930.

[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 380.—*Milk cows, heifers, and heifer calves: Number on farms, by States, Jan. 1, 1933–35*

State and division	Cows and heifers, 2 years old and over, kept for milk						Heifers 1 to 2 years old being kept for milk cows			Heifer calves under 1 year being kept for milk cows		
	Number			Value per head								
	1933	1934	1935[1]	1933	1934	1935[1]	1933	1934	1935[1]	1933	1934	1935[1]
	Thousands	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Maine	149	151	147	36.00	33.00	38.00	40	40	38	41	42	39
New Hampshire	81	82	82	46.00	41.00	48.00	19	19	18	19	19	17
Vermont	303	288	276	40.00	38.00	43.00	58	53	49	62	53	49
Massachusetts	129	133	136	64.00	64.00	68.00	19	19	19	21	21	21
Rhode Island	21	22	21	68.00	68.00	70.00	3	3	3	4	4	3
Connecticut	114	115	115	60.00	62.00	71.00	18	18	17	19	19	18
New York	1,438	1,431	1,359	49.00	51.00	55.00	222	234	237	240	244	234
New Jersey	122	127	133	63.00	76.00	84.00	17	19	20	22	22	22
Pennsylvania	904	922	931	42.00	44.00	45.00	153	155	146	161	168	155
North Atlantic	3,261	3,271	3,200	47.18	48.80	52.53	549	560	547	589	592	558
Ohio	966	995	985	32.00	29.00	31.00	178	181	174	187	195	175
Indiana	774	814	795	29.00	25.00	31.00	136	142	130	150	146	134
Illinois	1,122	1,178	1,178	32.00	29.00	34.00	219	209	189	235	232	209
Michigan	867	902	893	33.00	30.00	35.00	157	160	147	165	169	151
Wisconsin	2,175	2,212	2,124	30.00	28.00	33.00	395	387	356	400	392	349
East North Central	5,904	6,101	5,975	31.02	28.25	32.90	1,085	1,079	996	1,137	1,134	1,018
Minnesota	1,776	1,865	1,734	25.00	23.00	26.00	339	346	289	367	378	314
Iowa	1,503	1,593	1,545	29.00	27.00	28.00	288	288	255	293	319	280
Missouri	1,051	1,072	922	23.00	19.00	22.00	190	188	153	210	225	187
North Dakota	667	701	596	25.00	20.00	23.00	139	144	84	150	165	99
South Dakota	650	675	587	24.00	20.00	22.00	150	150	111	175	175	115
Nebraska	735	772	712	27.00	26.00	27.00	131	135	119	138	150	124
Kansas	868	929	855	25.00	22.00	24.00	147	147	119	165	175	152
West North Central	7,250	7,607	6,951	25.65	22.91	25.18	1,384	1,398	1,130	1,498	1,587	1,271
North Central	13,154	13,708	12,926	28.06	25.29	28.75	2,469	2,477	2,126	2,635	2,721	2,289
Delaware	36	36	36	36.00	41.00	41.00	5	4	5	4	4	4
Maryland	188	190	192	35.00	36.00	39.00	26	27	26	28	27	26
Virginia	402	406	398	27.00	26.00	28.00	49	49	46	55	50	47
West Virginia	227	236	239	29.00	27.00	27.00	33	34	30	38	38	34
North Carolina	328	337	343	28.00	27.00	29.00	66	69	68	75	75	73
South Carolina	154	156	156	27.00	28.00	28.00	29	28	29	32	31	32
Georgia	356	375	382	19.00	20.00	20.00	87	90	87	92	94	91
Florida	93	98	103	29.00	30.00	32.00	18	17	16	18	17	15
South Atlantic	1,784	1,834	1,849	26.97	26.80	28.02	313	318	307	342	336	322
Kentucky	544	554	554	23.00	21.00	24.00	70	73	72	87	88	88
Tennessee	527	543	521	21.00	19.00	21.00	86	90	85	100	100	93
Alabama	413	430	434	18.00	18.00	19.00	99	101	99	131	134	132
Mississippi	526	552	558	15.00	15.00	16.00	76	76	74	95	96	94
Arkansas	454	477	463	18.00	15.00	15.00	95	96	90	110	110	107
Louisiana	270	286	297	21.00	23.00	24.00	54	56	58	60	64	65
Oklahoma	766	797	733	20.00	16.00	18.00	154	159	124	186	205	155
Texas	1,391	1,461	1,388	20.00	18.00	19.00	223	245	196	259	272	218
South Central	4,891	5,100	4,948	19.60	17.79	19.21	857	896	798	1,028	1,069	952
Montana	201	211	194	32.00	26.00	26.00	46	50	44	47	51	45
Idaho	200	208	196	31.00	25.00	28.00	57	58	57	59	60	60
Wyoming	73	75	64	31.00	27.00	28.00	15	18	15	18	21	16
Colorado	274	290	264	25.00	22.00	25.00	65	72	62	75	82	69
New Mexico	72	75	65	25.00	25.00	27.00	17	18	16	20	22	17
Arizona	45	46	44	39.00	39.00	40.00	12	12	11	13	13	12
Utah	111	117	104	32.00	25.00	26.00	27	28	26	28	29	26
Nevada	21	22	21	38.00	36.00	37.00	6	6	6	7	8	7
Washington	312	318	324	36.00	27.00	37.00	70	70	70	74	72	72
Oregon	255	267	270	31.00	23.00	36.00	58	60	59	60	61	60
California	631	643	631	38.00	35.00	45.00	142	145	142	147	150	148
Western	2,195	2,272	2,177	33.15	28.04	34.92	515	537	508	548	569	532
United States	25,285	26,185	25,100	29.26	27.11	30.38	4,703	4,788	4,286	5,142	5,287	4,653

[1] Preliminary.

Bureau of Agricultural Economics; estimates of Crop Reporting Board.

Revisions by States, 1920–27, except for heifer calves, are published in February 1932, Crops and Markets.

TABLE 381.—*Heifers and heifer calves: Number on farms, United States, Jan. 1, 1920–35*

Year	Heifers 1 to 2 years old being kept for milk cows	Heifer calves under 1 year being kept for milk cows	Year	Heifers 1 to 2 years old being kept for milk cows	Heifer calves under 1 year being kept for milk cows	Year	Heifers 1 to 2 years old being kept for milk cows	Heifer calves under 1 year being kept for milk cows
	Thousands	*Thousands*		*Thousands*	*Thousands*		*Thousands*	*Thousands*
1920	4,420	4,371	1925	4,171	4,274	1930	4,700	5,005
1921	4,164	4,179	1926	4,045	4,276	1931	4,775	4,887
1922	3,972	4,357	1927	4,048	4,383	1932	4,685	4,953
1923	4,155	4,339	1928	4,158	4,606	1933	4,703	5,142
1924	4,143	4,378	1929	4,404	4,911	1934	4,788	5,287
						1935 [1]	4,286	4,653

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 382.—*Milk cows: Average price [1] per head received by producers, United States, 1925–34*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	54.80	54.80	56.20	56.80	57.90	57.80	58.00	58.30	58.70	60.20	60.70	60.40	57.90
1926	62.10	63.40	63.20	65.60	66.60	66.70	66.70	65.40	66.10	66.30	66.90	66.70	65.50
1927	66.80	68.20	70.20	72.00	72.40	74.20	74.20	74.20	76.10	78.60	81.10	82.40	74.20
1928	83.10	86.30	88.00	88.60	89.00	89.90	90.40	90.40	92.60	92.90	93.00	92.90	89.80
1929	91.50	91.80	92.80	93.60	94.90	95.30	96.30	95.30	95.60	95.10	94.50	92.60	94.10
1930	89.20	85.00	81.00	80.70	79.50	77.60	71.80	65.90	66.20	66.40	64.70	62.00	74.20
1931	59.90	56.90	56.30	56.50	54.40	51.50	49.50	47.80	46.70	45.60	46.00	44.20	51.30
1932	42.10	40.60	39.40	39.30	37.30	36.10	36.40	36.20	35.90	34.40	33.20	32.40	37.00
1933	31.70	31.30	31.30	32.00	34.40	35.30	36.40	34.80	34.30	33.50	32.10	31.20	33.20
1934	31.00	32.50	33.00	33.30	33.30	32.50	32.20	30.60	32.70	32.90	33.10	33.60	32.60

[1] As reported by country dealers.

Bureau of Agricultural Economics.

Monthly prices, by States, weighted by number of milk cows Jan. 1, to obtain a price for the United States; yearly price is a simple average of 12 months. Data for earlier years (on a slightly different basis) in 1928 Yearbook, table 451.

TABLE 383.—*Average production, feed cost, and value per cow, of butterfat and milk, classified on butterfat basis, 12-month records completed in 1933 by dairy herd-improvement associations, United States*

Cows (number)	Production			Feed costs			Value of product over feed cost	Return for $1 spent for feed	Feed cost per pound of butterfat	Feed cost per 100 pounds of milk
	Milk	Butterfat	Value	Roughage, including pasture	Grain	Total				
	Pounds	*Pounds*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
29	0	0	0	32	8	40	−40	0.00	0.00	0.00
61	388	16	12	15	5	20	−8	.60	1.25	5.15
392	1,330	54	29	21	7	28	1	1.04	.52	2.11
1,542	2,649	106	50	24	10	34	16	1.47	.32	1.28
5,946	3,954	155	66	25	12	37	29	1.78	.24	.94
16,897	5,227	203	84	28	15	43	41	1.95	.21	.82
31,290	6,465	252	104	29	18	47	57	2.21	.19	.73
37,689	7,567	300	125	30	21	51	74	2.45	.17	.67
31,838	8,660	348	145	31	24	55	90	2.64	.16	.64
19,789	9,762	397	166	32	27	59	107	2.81	.15	.60
10,116	10,897	446	188	33	30	63	125	2.98	.14	.58
4,482	12,090	496	215	34	33	67	148	3.21	.14	.55
1,795	13,481	546	241	37	36	73	168	3.30	.13	.54
654	14,771	596	281	41	41	82	199	3.43	.14	.56
285	15,932	646	286	41	45	86	200	3.33	.13	.54
113	17,461	694	299	45	48	93	206	3.22	.13	.53
44	17,727	747	400	50	53	103	297	3.88	.14	.58
32	20,176	795	375	51	55	106	269	3.54	.13	.53
13	21,794	842	352	57	57	114	238	3.09	.14	.52
3	21,182	896	474	71	73	144	330	3.29	.16	.68
3	20,242	950	400	78	77	155	245	2.58	.16	.77
1	26,654	1,030	839	56	49	105	734	7.99	.10	.39
Average	7,849	313	131	30	22	52	79	2.52	.17	.66

Bureau of Dairy Industry.

TABLE 384.—*Dairy herd-improvement and bull associations, United States, 1906–34*

July 1	Dairy herd-improvement associations	Cooperative dairy bull associations	July 1	Dairy herd-improvement associations	Cooperative dairy bull associations	January 1	Dairy herd-improvement associations	Cooperative dairy bull associations
	Number	*Number*		*Number*	*Number*		*Number*	*Number*
1906	1		1915	211	15	1925	732	220
1907	4		1916	346	24	1926	777	225
1908	6	3	1917	459	36	1927	837	248
1909	25	8	1918	353	44	1928	947	235
1910	40	9	1919	385	78	1929	1,090	339
1911	64	11	1920	468	123	1930	1,143	296
1912	82	11	1921	452	158	1931	1,112	359
1913	100	12	1922	513	190	1932	1,005	403
1914	163	14	1923	627	218	1933	881	342
						1934	793	351

Bureau of Dairy Industry.

TABLE 385.—*Purebred dairy cattle: Number registered each year, by breeds, United States, 1925–34*

Year	Ayrshire			Guernsey			Holstein-Friesian			Jersey		
	Bulls	Cows	Total	Bulls	Cows	Total	Bulls	Cows	Total	Bulls	Cows	Total
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
1925	1,561	5,972	7,533	11,299	20,742	32,041	26,935	82,659	109,594	12,131	41,725	53,856
1926	1,720	6,142	7,862	12,392	22,298	34,690	28,117	82,971	111,088	12,837	42,915	55,752
1927	1,847	6,554	8,401	12,777	22,694	35,471	28,817	81,146	109,963	15,666	48,411	64,077
1928	2,274	7,837	10,111	14,363	24,664	39,027	33,512	88,214	121,726	19,393	54,516	73,909
1929	2,586	8,833	11,419	14,661	26,288	40,949	35,438	89,927	125,365	19,230	52,431	71,661
1930	2,050	8,159	10,209	15,810	28,662	44,472	29,242	75,901	105,143	14,350	43,767	58,117
1931	1,552	7,324	8,876	12,880	27,964	40,844	21,811	70,535	92,346	10,262	38,211	48,473
1932	1,317	6,306	7,623	[1] 9,962	25,817	35,779	13,834	54,481	68,315	7,678	33,551	41,229
1933	1,430	7,542	8,972	7,185	22,809	29,994	15,521	83,002	98,523	6,217	29,239	35,456
1934	2,530	14,906	17,436	7,708	27,054	34,762	17,283	82,935	100,218	6,170	32,408	38,578

[1] Year ended Apr. 1.

Bureau of Dairy Industry; obtained from registry associations.
See 1930 Yearbook, table 441, for data for earlier years.

TABLE 386.—*Cattle: Tuberculin testing under accredited-herd and area plans, 1925–34*

Year ended June 30	Cattle tested			Reactors found		Modified accredited counties [1]	Herds accredited [2]	Herds passed 1 test [2]	Herds under supervision [2]
	Accredited-herd plan	Area plan	Total						
	Number	*Number*	*Number*	*Number*	*Percent*	*Number*	*Number*	*Number*	*Number*
1925	2,008,526	4,991,502	7,000,028	214,491	3.1	51	24,110	392,740	414,620
1926	1,989,048	6,661,732	8,650,780	323,084	3.7	109	24,009	382,674	435,840
1927	2,522,791	7,177,385	9,700,176	285,361	2.9	149	34,084	229,086	261,148
1928	2,589,844	8,691,646	11,281,490	262,113	2.3	180	38,880	427,595	473,218
1929	2,853,633	8,830,087	11,683,720	206,764	1.8	213	1,639	249,420	281,323
1930	2,953,350	9,892,521	12,845,871	216,932	1.7	236	11,863	227,921	347,448
1931	3,086,403	10,695,870	13,782,273	203,778	1.5	247	26,259	350,735	356,916
1932	3,131,426	10,312,131	13,443,557	254,785	1.9	220	[3] 18,049	262,988	303,832
1933	2,980,526	10,093,368	13,073,894	255,096	2.1	183	19,701	337,730	346,394
1934	2,826,257	12,293,506	15,119,763	232,368	1.5	189	31,460	342,262	387,969

[1] Modified accredited counties are those in which tuberculosis does not exist among more than 0.5 percent of the cattle, as determined by official tuberculin testing, and from which all reactors to the test have been removed.
[2] The figures in these columns represent net increases at the close of each year.
[3] Represents decrease from figures for previous year.

Bureau of Animal Industry.
Current data on tuberculosis-eradication work, including progress by States and counties, may be obtained from Bureau of Animal Industry. Data for earlier years in 1928 Yearbook, table 448.

TABLE 387.—*Milk cows and production of milk: Estimated number of producing cows, yield per cow, and production of milk by States, 1932–34*

State and division	Milk cows on farms [1]			Milk production per cow [2]			Total production of milk on farms [2]		
	1932	1933	1934 [3]	1932	1933	1934 [3]	1932	1933	1934 [3]
	Thousands	*Thousands*	*Thousands*	*Pounds*	*Pounds*	*Pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Maine	140	142	142	4,620	4,430	4,420	647	629	628
New Hampshire	76	77	78	4,900	4,750	4,700	372	366	367
Vermont	275	281	264	4,800	4,660	4,720	1,320	1,309	1,246
Massachusetts	126	123	128	5,710	5,730	5,525	719	705	707
Rhode Island	21	21	21	6,300	6,300	6,050	132	132	127
Connecticut	110	109	110	5,660	5,600	5,400	623	610	594
New York	1,370	1,378	1,336	5,357	5,295	5,351	7,340	7,297	7,149
New Jersey	116	119	125	5,900	5,900	5,980	684	702	748
Pennsylvania	877	897	908	4,980	4,930	4,950	4,367	4,422	4,495
North Atlantic	3,111	3,147	3,112	5,209	5,139	5,161	16,204	16,172	16,061
Ohio	912	942	952	4,470	4,340	4,300	4,077	4,088	4,094
Indiana	731	762	775	4,160	4,000	3,820	3,041	3,048	2,960
Illinois	1,054	1,100	1,130	4,510	4,470	4,380	4,754	4,917	4,949
Michigan	822	850	863	5,100	4,950	4,800	4,192	4,208	4,142
Wisconsin	2,074	2,106	2,085	5,300	5,140	5,100	10,992	10,825	10,634
East North Central	5,593	5,760	5,805	4,837	4,702	4,613	27,056	27,086	26,779
Minnesota	1,627	1,715	1,715	4,800	4,720	4,300	7,810	8,095	7,374
Iowa	1,406	1,455	1,490	4,300	4,300	4,100	6,046	6,256	6,109
Missouri	1,012	1,041	1,003	3,540	3,380	3,280	3,582	3,519	3,290
North Dakota	602	640	620	3,750	3,560	3,175	2,258	2,278	1,968
South Dakota	560	600	580	3,580	3,530	2,900	2,005	2,118	1,682
Nebraska	672	715	720	4,100	4,200	3,880	2,755	3,003	2,794
Kansas	817	845	853	4,000	3,950	3,630	3,268	3,338	3,096
West North Central	6,696	7,011	6,981	4,140	4,080	3,769	27,724	28,607	26,313
Delaware	33	34	34	3,950	3,900	3,780	130	133	129
Maryland	180	182	184	4,250	4,200	4,120	765	764	758
Virginia	381	386	385	3,360	3,160	3,180	1,280	1,220	1,224
West Virginia	210	220	227	3,560	3,310	3,250	748	728	738
North Carolina	304	317	322	3,660	3,450	3,430	1,113	1,094	1,104
South Carolina	141	147	149	3,450	3,380	3,250	486	497	484
Georgia	328	343	356	3,080	2,960	2,820	1,010	1,015	1,004
Florida	86	89	94	2,770	2,770	2,650	238	247	249
South Atlantic	1,663	1,718	1,751	3,470	3,317	3,250	5,770	5,698	5,690
Kentucky	522	536	541	3,440	3,370	3,220	1,796	1,806	1,742
Tennessee	496	516	513	3,240	3,080	2,930	1,607	1,589	1,503
Alabama	384	405	412	3,000	2,760	2,700	1,152	1,118	1,112
Mississippi	484	513	525	2,740	2,500	2,300	1,326	1,282	1,208
Arkansas	406	433	438	3,000	2,750	2,480	1,218	1,191	1,086
Louisiana	244	254	270	2,230	2,070	1,900	544	526	513
Oklahoma	710	749	735	2,450	3,250	2,950	2,450	2,434	2,168
Texas	1,261	1,334	1,335	3,180	2,930	2,800	4,010	3,909	3,738
South Central	4,507	4,740	4,769	3,129	2,923	2,741	14,103	13,855	13,070
Montana	183	192	191	3,990	3,850	3,750	730	739	716
Idaho	186	193	193	5,440	5,280	5,020	1,012	1,019	969
Wyoming	69	70	68	3,790	3,840	3,680	262	269	250
Colorado	251	262	262	4,000	4,000	3,790	1,004	1,048	993
New Mexico	67	68	68	3,300	3,150	2,960	221	214	201
Arizona	42	44	43	4,640	4,740	4,900	195	209	211
Utah	107	108	106	5,300	5,280	4,980	567	570	528
Nevada	21	21	21	4,880	4,730	4,550	102	99	96
Washington	295	304	309	5,680	5,350	5,700	1,676	1,626	1,761
Oregon	247	252	260	5,200	4,850	5,050	1,284	1,222	1,313
California	599	599	609	6,600	6,470	6,550	3,953	3,876	3,989
Western	2,067	2,113	2,130	5,325	5,154	5,177	11,006	10,891	11,027
United States	23,637	24,489	24,548	4,309	4,178	4,030	101,863	102,309	98,940

[1] Average number of milk cows on farms during year, excluding heifers not fresh.
[2] Excluding milk spilled or wasted on farms and milk sucked by calves.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of Division of Crop and Livestock Estimates.

TABLE 388.—*Milk and butterfat produced and milk used for each purpose on farms, 1934*

State and division	Milk cows on farms [1]	Estimated production per milk cow during year [2]		Percentage of butterfat in milk produced	Total production on farms [2]		Disposition of milk					
		Milk	Butterfat		Milk	Butterfat	Used as whole milk or cream on farms where produced	Used for making butter on farms	Whole milk fed to calves	Milk skimmed or separated for sale of butterfat	Retailed by producers [3]	Milk sold at wholesale [4]
	Thousands	*Lb.*	*Lb.*	*Percent*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*
Maine	142	4,420	181	4.1	628	26	72	156	13	79	106	202
New Hampshire	78	4,700	183	3.9	367	14	28	33	8	9	44	245
Vermont	264	4,720	191	4.05	1,246	50	63	37	29	160	58	899
Massachusetts	128	5,525	210	3.8	707	27	51	14	15	9	135	483
Rhode Island	21	6,050	233	3.85	127	5	6	1	3	-------	12	105
Connecticut	110	5,400	205	3.8	594	23	41	11	17	4	116	405
New York	1,336	5,351	194	3.63	[5] 7,149	259	385	332	250	168	565	5,449
New Jersey	125	5,980	220	3.68	748	28	47	12	15	2	198	474
Pennsylvania	908	4,950	188	3.8	4,495	171	413	349	108	187	740	2,698
North Atlantic	3,112	5,161	193.8	3.75	16,061	603	1,106	945	458	618	1,974	10,960
Ohio	952	4,300	176	4.1	4,094	168	556	314	119	1,145	391	1,569
Indiana	775	3,820	159	4.15	2,960	123	411	158	71	1,146	213	961
Illinois	1,130	4,380	166	3.8	4,949	188	564	363	124	1,534	415	1,949
Michigan	863	4,800	182	3.8	4,142	157	397	285	145	1,400	308	1,607
Wisconsin	2,085	5,100	189	3.7	10,634	394	541	65	308	2,697	216	6,807
East North Central	5,805	4,613	177.4	3.85	26,779	1,030	2,469	1,185	767	7,922	1,543	12,893
Minnesota	1,715	4,300	161	3.75	7,374	276	566	206	206	5,511	190	695
Iowa	1,490	4,100	156	3.8	6,109	232	607	297	177	4,423	167	438
Missouri	1,003	3,280	138	4.2	3,290	138	565	444	89	1,598	195	399
North Dakota	620	3,175	119	3.75	1,968	74	238	321	67	1,254	58	30
South Dakota	580	2,900	110	3.8	1,682	64	224	194	59	1,114	59	32
Nebraska	720	3,880	147	3.8	2,794	106	347	316	98	1,708	124	201
Kansas	853	3,630	142	3.9	3,096	121	402	287	111	1,778	185	333
West North Central	6,981	3,769	144.8	3.84	26,313	1,011	2,949	2,065	807	17,386	978	2,128
Delaware	34	3,780	147	3.9	129	5	16	9	3	2	19	80
Maryland	184	4,120	163	3.95	758	30	96	73	15	14	102	458
Virginia	385	3,180	130	4.1	1,224	50	286	433	37	130	110	228
West Virginia	227	3,250	136	4.2	738	31	189	250	25	94	109	71
North Carolina	322	3,430	147	4.3	1,104	47	349	491	15	60	92	97
South Carolina	149	3,250	143	4.4	484	21	148	225	6	20	55	30
Georgia	356	2,820	124	4.4	1,004	44	268	500	10	66	58	102
Florida	94	2,650	114	4.3	249	11	37	41	2	8	68	93
South Atlantic	1,751	3,250	136.5	4.20	5,690	239	1,389	2,022	113	394	613	1,159
Kentucky	541	3,220	138	4.3	1,742	75	437	437	30	498	145	195
Tennessee	513	2,930	129	4.4	1,503	66	339	526	18	255	78	287
Alabama	412	2,700	120	4.45	1,112	49	296	611	9	50	65	81
Mississippi	525	2,300	104	4.5	1,208	55	271	432	10	199	54	242
Arkansas	438	2,480	107	4.3	1,086	47	258	420	9	261	75	63
Louisiana	270	1,900	84	4.4	513	23	189	97	5	24	66	132
Oklahoma	735	2,950	125	4.25	2,168	92	443	394	48	884	166	233
Texas	1,335	2,800	123	4.4	3,738	164	904	1,041	56	933	285	519
South Central	4,769	2,741	119.7	4.37	13,070	571	3,137	3,958	185	3,104	934	1,752
Montana	191	3,750	146	3.9	716	28	92	110	23	353	65	73
Idaho	193	5,020	198	3.95	969	38	104	50	25	513	41	236
Wyoming	68	3,680	142	3.85	250	10	35	27	8	118	23	39
Colorado	262	3,790	144	3.8	993	38	141	81	38	423	48	262
New Mexico	68	2,960	118	4.0	201	8	42	30	4	78	34	13
Arizona	43	4,900	189	3.85	211	8	24	11	5	59	42	70
Utah	106	4,980	189	3.8	528	20	62	37	16	147	36	230
Nevada	21	4,550	173	3.8	96	4	8	4	3	61	14	6
Washington	309	5,700	231	4.05	1,761	71	149	68	56	572	143	773
Oregon	260	5,050	217	4.3	1,313	56	121	55	39	561	89	448
California	609	6,550	249	3.8	3,989	152	180	37	112	966	415	2,279
Western	2,130	5,177	203.3	3.93	11,027	433	958	510	329	3,851	950	4,429
United States	24,548	4,030	158.3	3.93	98,940	3,887	12,008	10,685	2,659	33,275	6,992	33,321

[1] Estimated average number of milk cows on farms during 1934. The estimates exclude heifers not yet fresh but include some cows which had calves running with them much of the year.

[2] These estimates exclude milk sucked by calves, milk spilled or lost up to the time it is measured, skimmed, or delivered by farmers, and milk produced by cows not on farms.

[3] Approximations based chiefly on the population in small towns and rural areas where most families purchase their milk supply directly from local farmers. Estimates include milk equivalent of cream.

[4] Estimates include milk delivered to creameries, condensaries, cheese factories, and market-milk receiving stations, but exclude market milk sold to other farmers for local retail delivery.

[5] As computed by counties.

Bureau of Agricultural Economics: estimates of Division of Crop and Livestock Estimates.

TABLE 389.—*Dairy products: Annual per capita consumption in the United States, 1924–33*

Year	Butter [1]	Cheese [2]	Evaporated milk [3]	Condensed milk [3]	Milk used in cities and villages [4]	Milk equivalent, all products [5]
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Gallons*	*Gallons*
1924	18.18	4.20	----------	----------	38.6	91.7
1925	17.69	4.26	----------	----------	38.9	92.1
1926	17.56	4.36	11.56	2.75	39.3	94.6
1927	17.48	4.14	11.59	2.60	39.6	94.4
1928	17.21	4.11	12.50	2.56	39.8	94.2
1929	17.40	4.62	13.83	2.75	40.8	94.3
1930	17.36	4.71	13.68	2.66	40.6	94.8
1931	17.96	4.49	13.70	2.29	40.0	96.7
1932	18.10	4.39	14.41	1.80	40.0	95.3
1933	17.64	4.51	14.23	1.66	38.8	92.7

[1] Includes both farm- and factory-made butter. These estimates include some butter used in other products such as ice cream. [2] Includes all kinds of cheese except cottage, pot, and bakers.

[3] Includes some condensed and evaporated milk used in other products, also includes both whole- and skim-milk product.

[4] Milk and milk equivalent of cream consumed per capita by that part of the population not on rural farms. These estimates include some milk and cream used in such products as ice cream and supersede estimates previously issued.

[5] Based on estimates of milk production on farms and elsewhere, with milk fed to calves deducted in calculating per capita consumption.

Bureau of Agricultural Economics.

Consumption of butter, cheese, evaporated milk, condensed milk, and milk equivalent of all dairy products is calculated from production, foreign trade, and domestic stocks. Milk used in cities and villages is calculated from board of health reports.

TABLE 390.—*Dairy products: Quantity manufactured, 1926–33*

Product	1926	1927	1928	1929	1930	1931	1932	1933
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Creamery butter	1,451,766	1,496,495	1,487,049	1,597,027	1,595,231	1,667,452	1,694,132	1,762,688
Whey butter (made from whey cream)	2,872	1,217	1,097	1,221	2,516	(1)	(1)	(1)
Renovated or process butter	2,505	4,286	2,716	2,531	1,850	1,236	950	1,079
American cheese:								
Whole milk	335,915	307,777	335,253	370,314	378,816	374,648	370,743	408,631
Part skim	2,927	3,390	2,900	4,951	3,653	3,108	3,319	6,338
Full skim	1,384	1,888	3,048	1,074	669	416	225	680
Swiss cheese (including block)	20,883	18,141	16,718	19,406	26,393	28,234	25,533	40,287
Brick and Munster cheese	31,048	31,546	28,960	31,763	33,548	35,484	36,973	36,057
Limburger cheese	9,639	8,842	7,437	8,568	8,473	8,508	7,897	9,469
Cream and Neufchatel cheese	18,192	25,962	30,589	34,405	33,213	33,637	31,608	33,438
All Italian varieties of cheese	2,425	3,377	3,587	5,948	8,573	3,493	3,795	4,759
All other varieties of cheese	5,003	5,763	9,027	7,504	7,029	4,851	4,010	4,076
Cottage, pot, and bakers' cheese	67,977	75,679	87,525	94,941	97,641	101,617	103,524	100,854
Condensed milk (sweetened):								
Case goods:								
Skimmed	1,298	1,623	1,366	1,632	2,092	1,757	1,167	1,260
Unskimmed	154,944	161,355	139,077	145,922	121,626	97,469	70,288	53,880
Bulk goods:								
Skimmed	147,473	143,722	154,723	202,475	158,971	140,361	120,923	114,936
Unskimmed	55,737	39,668	38,660	51,689	62,421	45,887	42,628	40,964
Unsweetened condensed milk (plain condensed): [2]								
Bulk goods:								
Skimmed	116,758	126,085	147,625	153,624	156,212	145,416	138,646	127,197
Unskimmed	86,833	101,354	89,336	151,662	128,203	110,038	96,052	86,992
Evaporated milk (unsweetened):								
Case goods:								
Skimmed	11,985	8,100	10,618	----------	1,650	86	----------	----------
Unskimmed	1,158,476	1,273,815	1,337,022	1,499,644	1,449,149	1,428,993	1,570,612	1,716,700
Condensed or evaporated buttermilk	86,687	99,180	102,452	107,288	96,431	64,619	52,167	50,175
Dried or powdered buttermilk	31,378	38,435	45,502	54,215	64,601	50,535	48,712	53,260
Powdered whole milk	10,768	11,464	9,605	13,202	15,440	12,627	11,983	13,026
Powdered skimmed milk	91,718	118,123	147,990	207,579	260,675	261,938	270,194	288,114
Powdered cream	331	338	673	294	400	161	80	154
Dried casein (skim milk or buttermilk product)	16,953	18,033	22,151	30,537	41,965	35,335	24,428	24,087
Malted milk	20,673	22,116	21,128	22,850	22,691	19,197	13,215	12,430
Milk sugar (crude)	4,476	4,077	5,323	8,965	12,779	9,562	----------	----------
Ice cream of all kinds (gallons) [3]	215,248	226,756	232,185	254,618	240,750	208,239	154,604	148,913

[1] Included in creamery butter.

[2] Unsweetened condensed milk (plain condensed) was classified as "Evaporated milk (unsweetened), bulk goods", in previous years. [3] Production in commercial ice-cream factories only.

Bureau of Agricultural Economics, compiled from reports of factories made direct to the Bureau.

Figures beginning with the year 1929 are the most complete since these reports were inaugurated in 1918. Some allowance, therefore, should be made for this when comparing production since 1929 with that of previous years.

TABLE 391.—*Dairy products: Quantity manufactured, by months, 1933*

Product	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Creamery butter [1]	130,245	122,322	133,266	138,306	191,098	201,969	176,829	166,562	140,038	130,454	115,215	116,384	1,762,688
Renovated or process butter	124	77	72	80	90	71	126	94	68	88	83	106	1,079
American cheese:													
Whole milk	24,877	23,868	28,571	32,356	43,564	54,653	48,206	42,857	35,620	29,864	21,016	23,179	408,631
Part skim	420	406	560	602	706	785	590	469	508	536	423	333	6,338
Full skim	23	27	31	26	14	14	53	162	191	83	33	23	680
Swiss cheese (including block)	1,137	1,127	1,667	2,689	4,531	5,526	5,274	4,920	4,315	3,931	2,841	2,329	40,287
Munster cheese	676	675	900	736	603	443	509	374	400	551	500	739	7,106
Brick cheese	2,277	1,967	2,479	2,944	3,237	3,691	2,741	2,346	1,859	1,885	1,451	2,074	28,951
Limburger cheese	420	381	500	703	1,065	1,192	1,041	988	946	959	682	592	9,469
All Italian varieties of cheese	326	323	405	421	414	437	371	318	334	362	483	565	4,759
Neufchatel cheese	55	55	61	65	61	51	39	37	41	72	63	86	686
Cream cheese	2,741	2,767	2,902	2,699	2,602	2,469	2,306	2,152	2,542	2,818	3,255	3,499	32,752
All other varieties of cheese	353	331	374	379	396	359	276	278	294	356	344	336	4,076
Cottage, pot, and bakers' cheese	7,566	7,655	9,095	8,519	9,406	9,777	9,296	8,427	7,921	8,296	7,613	7,283	100,854
Sweetened condensed milk:													
Case goods—													
Skimmed	127	144	67	71	117	110	51	142	59	128	147	97	1,260
Unskimmed	4,884	4,216	4,374	4,473	6,427	5,062	4,753	4,099	3,385	3,869	3,918	4,420	53,880
Bulk goods:													
Skimmed	7,318	7,065	7,729	9,426	12,938	14,627	9,853	8,281	10,129	10,693	8,426	8,451	114,936
Unskimmed	2,989	2,693	3,128	3,293	4,350	4,520	3,227	4,044	3,923	3,817	2,310	2,670	40,964
Unsweetened condensed milk (plain condensed):													
Bulk: [2]													
Skimmed	7,931	7,365	8,805	10,144	14,024	16,539	14,980	14,089	10,994	8,255	6,688	7,383	127,197
Unskimmed	5,352	4,822	6,191	8,951	11,507	11,287	9,847	7,811	7,304	5,935	3,934	4,051	86,992
Evaporated milk (unsweetened):													
Case goods—Unskimmed	116,947	109,622	145,706	176,195	213,174	220,253	179,204	154,595	129,399	113,258	73,592	84,755	1,716,700
Concentrated skim milk (for animal feed)	1,280	1,221	1,468	1,466	1,245	1,396	1,791	1,633	1,191	1,649	1,436	1,441	17,217
Condensed or evaporated buttermilk (including concentrated product)	3,380	3,019	2,863	2,614	4,413	5,390	5,076	5,418	4,927	4,992	4,183	3,900	50,175
Dried or powdered buttermilk	3,966	3,875	4,425	4,639	6,163	6,346	5,250	4,692	3,759	3,594	3,211	3,340	53,260
Powdered whole milk	407	701	780	825	1,292	1,485	1,238	1,481	1,187	1,126	1,275	1,229	13,026
Powdered skim milk	21,770	19,549	22,780	24,843	30,818	31,650	25,695	21,407	21,049	23,071	20,946	24,536	288,114
Powdered cream	2	6	1	5	12	31	27	13	30	13	3	11	154
Dried casein (skim milk, or buttermilk product)	1,608	1,401	1,771	2,047	2,376	2,580	1,860	1,668	1,899	2,409	2,114	2,354	24,087
Malted milk	1,031	956	1,009	1,122	1,159	1,164	972	904	1,019	1,275	926	893	12,430
Ice cream, gallons [3]	6,342	5,712	7,378	9,782	16,809	23,531	22,664	20,280	14,933	8,782	6,348	6,352	148,913
Sherbets, gallons [3]	61	62	83	113	202	344	345	279	191	116	84	77	1,957

[1] Includes whey butter.

[2] Unsweetened condensed milk (plain condensed) was classified as "Evaporated milk (unsweetened) bulk goods", in previous years.

[3] Production in commercial ice-cream factories only.

Bureau of Agricultural Economics; compiled from reports made direct to the Bureau.

TABLE 392.—*Milk: Supply and distribution of milk [1] in the United States, 1924–33*

Item	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Supply:	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Milk produced—										
By cows on farms	87,069	88,375	91,887	94,307	95,910	98,782	99,736	101,970	101,863	102,309
By cows not on farms	4,420	4,241	4,079	3,846	3,524	3,145	2,826	2,826	2,826	2,826
Imports for consumption: [2]										
Manufactured dairy products [3]	973	741	874	963	876	805	721	623	536	497
Fresh milk and cream	405	508	526	456	358	291	151	12	11	(4)
Stocks on hand Jan. 1:										
Manufactured dairy products [5]	1,695	2,318	2,219	1,669	2,007	2,197	3,127	2,680	1,678	1,417
Fresh cream (40 percent)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	185	52	145
Total	94,562	96,183	99,585	101,241	102,675	105,220	106,561	108,296	106,966	107,194
Distribution:										
Exports, domestic: [7]										
Manufactured dairy products [8]	697	551	423	371	382	372	310	277	178	133
Fresh milk and cream	1	1	(4)	1	1	2	2	1	(4)	(4)
Shipments to noncontiguous territories: Manufactured dairy products [3]	146	131	131	139	132	131	144	162	164	180
Stocks on hand Dec. 31:										
Manufactured dairy products [5]	2,318	2,219	1,669	2,007	2,197	3,127	2,680	1,678	1,417	3,763
Fresh cream (40 percent)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	52	145	149
Milk fed to calves on farms	2,177	2,262	2,554	2,744	2,887	3,010	2,976	2,964	2,806	2,800
Total distribution exclusive of disappearance for domestic human consumption	5,339	5,164	4,777	5,262	5,599	6,642	6,112	5,134	4,710	7,025
Disappearance for domestic human consuption	89,223	91,019	94,808	95,979	97,076	98,578	100,449	103,162	102,256	100,169
Population, July 1 census estimates—thousands	113,202	114,867	116,532	118,197	119,862	121,526	123,191	124,070	124,822	125,693
Per capita disappearance—pounds	788.2	792.4	813.6	812.0	809.9	811.2	815.4	831.5	819.2	796.9
Per capita disappearance—gallons	91.7	92.1	94.6	94.4	94.2	94.3	94.8	96.7	95.3	92.7

[1] Milk, manufactured dairy products and cream, expressed in milk equivalent.
[2] Imports for consumption less "general imports" of noncontiguous territories.
[3] Includes butter, cheese, condensed and evaporated milk, dry milk, dry cream, and malted milk and compounds.
[4] Less than 500,000 pounds.
[5] Includes stocks in cold storage of butter and all cheese, and manufactured stocks of condensed and evaporated milk (case goods only), dry whole milk and cream powder.
[6] Not reported prior to 1931.
[7] Domestic exports less domestic exports of noncontiguous territories.
[8] Includes butter, cheese, condensed and evaporated milk, dried milk and infants' foods, and malted milk.

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TABLE 393.—*Fluid milk and cream: Receipts [1] at New York, Philadelphia, Boston, and Chicago, by origin, 1933 and 1934*

Product and State of origin	New York		Philadelphia		Boston		Chicago
	1933	1934	1933	1934	1933	1934	1934
	40-quart units [2]	*40-quart units* [2]	*40-quart units* [2]	*40-quart units* [2]	*40-quart units* [2]	*40-quart units* [2]	*40-quart units* [2]
Fluid milk:							
Connecticut	231, 895	202, 383					
Delaware	34, 887	41, 706	517, 018	451, 705			
Indiana	2, 648	216	340				
Maine					769, 494	688, 063	
Maryland	153, 104	153, 223	847, 706	849, 866			
Massachusetts	133, 206	145, 451			544, 091	530, 629	
New Hampshire					670, 569	765, 003	
New Jersey	3, 337, 760	3, 438, 275	562, 933	595, 528			
New York	[3]22, 383, 523	20, 865, 653			359, 366	341, 497	
Ohio	4, 910	1, 127					
Pennsylvania	5, 383, 028	5, 485, 943	4, 844, 597	5, 078, 585			
Rhode Island					1, 883	12, 949	
Tennessee	496						
Vermont	1, 376, 316	1, 228, 945			3, 376, 147	3, 415, 786	
Virginia			5, 548				
West Virginia			9, 367	23, 084			
Wisconsin			122				
Total	[3]33, 041, 773	31, 562, 922	6, 787, 631	6, 998, 768	5, 721, 550	5, 753, 927	
Fluid cream:							
Alabama						200	
Arkansas							8, 198
Connecticut	6, 707	5, 702			200		
Delaware	3, 292	983	3, 178	2, 556			
District of Columbia			150	690			
Illinois	725		2, 263	1, 821	3, 950	1, 400	179, 931
Indiana	17, 355	10, 402	44, 434	20, 538	22, 563	7, 731	20, 978
Iowa							7, 792
Kansas					7, 975	2, 000	163
Kentucky							10, 196
Maine					52, 626	45, 365	
Maryland	670	450	34, 202	20, 634	1, 700	400	
Massachusetts	868	1, 771			1, 509	2, 202	
Michigan	642	200	1, 400	600	45, 302	50, 915	2, 419
Minnesota			5, 925	1, 990	21, 882	9, 299	1
Mississippi							310
Missouri	800		4, 009	3, 506	30, 703	13, 884	29, 748
New Hampshire					19, 954	19, 949	
New Jersey	23, 474	25, 904	2, 032	260			
New York	1, 135, 418	1, 172, 651	2, 121	17, 902	23, 325	66, 808	
Ohio	30, 248	26, 772	8, 940	9, 257	15, 435	14, 160	6, 175
Oklahoma							215
Pennsylvania	200, 578	176, 691	69, 497	104, 757	207	360	25
Rhode Island					73	1	
Tennessee	5, 600				11, 383	22, 449	1, 394
Texas	200		200				
Vermont	121, 346	90, 897			228, 457	272, 806	
Virginia			4, 434	246			
West Virginia	200		2, 620	1, 385			
Wisconsin	25, 338	6, 150	83, 172	76, 470	52, 162	56, 335	259, 647
Total	1, 573, 461	1, 518, 573	268, 577	262, 612	539, 406	586, 264	527, 222

[1] Figures include both rail and truck receipts at New York, Philadelphia, and Boston; Chicago receipts are rail only.
[2] 40-quart units equal standard 10-gallon cans.
[3] Revised.

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TABLE 394.—*Milk: Average price per 100 pounds received by producers, United States, 1925–34*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average [1]
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	2.48	2.55	2.62	2.48	2.47	2.47	2.45	2.55	2.56	2.73	2.69	2.65	2.55
1926	2.74	2.68	2.56	2.46	2.39	2.35	2.40	2.37	2.47	2.46	2.60	2.61	2.50
1927	2.68	2.64	2.55	2.58	2.51	2.44	2.40	2.36	2.48	2.55	2.56	2.64	2.52
1928	2.67	2.69	2.61	2.51	2.49	2.45	2.45	2.46	2.56	2.60	2.63	2.65	2.55
1929	2.64	2.64	2.63	2.59	2.53	2.47	2.46	2.50	2.52	2.55	2.59	2.60	2.57
1930	2.53	2.44	2.38	2.35	2.28	2.22	2.15	2.18	2.25	2.30	2.31	2.20	2.26
1931	2.04	1.96	1.92	1.85	1.73	1.66	1.62	1.64	1.70	1.72	1.73	1.67	1.70
1932	1.56	1.49	1.43	1.39	1.29	1.17	1.20	1.21	1.25	1.28	1.26	1.26	1.29
1933	1.25	1.16	1.10	1.08	1.14	1.21	1.33	1.39	1.47	1.51	1.51	1.49	1.29
1934	1.44	1.48	1.50	1.46	1.45	1.47	1.50	1.52	1.57	1.60	1.65	1.69	1.52

[1] Yearly State averages weighted by volume sold to obtain yearly average for the United States, 1929–34.

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of milk cows Jan. 1, to obtain a price for the United States. Prices quoted are for milk sold to dealers, factories, etc.

TABLE 395.—*Milk: Milk dealers' average buying prices per hundredweight for standard grade milk testing 3.5 percent butterfat which is used for city distribution as milk and cream, 1925–34*

[F. o. b. local shipping point or country plant]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	2.68	2.73	2.65	2.62	2.58	2.50	2.55	2.65	2.66	2.79	2.78	2.80	2.67
1926	2.87	2.79	2.78	2.77	2.64	2.62	2.65	2.68	2.71	2.76	2.79	2.84	2.74
1927	2.83	2.78	2.74	2.71	2.67	2.62	2.63	2.67	2.68	2.75	2.78	2.81	2.72
1928	2.87	2.83	2.79	2.74	2.65	2.65	2.66	2.73	2.76	2.82	2.86	2.88	2.77
1929	2.87	2.86	2.83	2.79	2.77	2.69	2.76	2.77	2.82	2.85	2.88	2.86	2.81
1930	2.81	2.77	2.74	2.69	2.63	2.57	2.60	2.60	2.73	2.69	2.69	2.59	2.68
1931	2.46	2.38	2.33	2.25	2.14	2.16	2.13	2.20	2.14	2.14	2.10	2.00	2.20
1932	1.95	1.88	1.80	1.77	1.71	1.69	1.62	1.64	1.64	1.68	1.64	1.57	1.72
1933	1.55	1.50	1.46	1.47	1.45	1.49	1.57	1.67	1.72	1.77	1.79	1.80	1.60
1934	1.81	1.80	1.79	1.81	1.81	1.82	1.86	1.91	1.97	2.02	2.03	2.04	1.89

Bureau of Agricultural Economics. Compiled from reports of the Bureau, secured through the cooperation of milk distributors, producers' associations, and municipal officers.

TABLE 396.—*Milk: Average prices per hundredweight paid producers by condensaries for milk testing 3.5 percent butterfat, f. o. b. factory, 1925–34*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1925	1.92	1.93	1.93	1.93	1.88	1.82	1.91	1.98	2.01	2.09	2.15	2.15	1.81
1926	2.17	2.06	2.03	1.93	1.81	1.79	1.79	1.84	1.95	2.00	2.09	2.22	1.97
1927	2.28	2.28	2.20	2.14	2.00	1.91	1.91	2.00	2.07	2.15	2.20	2.25	2.12
1928	2.27	2.22	2.08	2.05	1.97	1.92	1.96	2.07	2.16	2.19	2.21	2.28	2.12
1929	2.23	2.18	2.14	2.07	1.99	1.92	1.91	1.96	1.97	2.04	2.07	2.02	2.04
1930	1.87	1.71	1.69	1.68	1.67	1.58	1.54	1.61	1.72	1.75	1.67	1.56	1.67
1931	1.42	1.35	1.27	1.21	1.12	1.04	1.02	1.02	1.12	1.22	1.23	1.19	1.18
1932	1.12	.99	.95	.93	.86	.81	.77	.80	.85	.86	.86	.92	.89
1933	.95	.84	.82	.81	.93	1.00	1.07	1.10	1.09	1.10	1.08	1.00	.98
1934	.97	1.10	1.11	1.02	1.06	1.09	1.09	1.21	1.17	1.20	1.32	1.35	1.14

Bureau of Agricultural Economics. Compiled from reports of the Bureau, secured through the cooperation of firms operating condensaries.

TABLE 397.—*Milk and cream, condensed and evaporated: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Netherlands	319,831	291	393,151	695	415,437	1,328	396,933	109	371,049	10
United States	118,215	2,830	90,459	1,611	75,085	1,245	50,807	1,188	37,090	1,118
Switzerland	76,691	35	72,660	15	63,432	18	29,491	18	20,324	12
Denmark	55,666	17	51,916	6	49,233	1	56,591	0	53,718	2
Canada	32,287	142	20,470	164	14,458	148	21,013	51	23,069	14
Australia [2]	20,852	70	11,459	21	10,664	4	17,469	2	-------	-------
Norway	18,462	789	13,447	111	11,280	155	8,330	55	4,119	136
Italy	9,804	1,335	5,141	1,761	6,374	1,461	4,882	1,009	4,720	1,037
Irish Free State	8,658	1,598	9,720	416	6,565	734	10,233	295	14,426	61
Belgium [3]	2,582	1,416	7,389	1,420	9,541	1,808	6,467	[4] 5,036	7,530	[4] 6,793
Czechoslovakia	532	360	280	281	294	250	20	178	9	143
New Zealand [4]	1,494	23	2,331	1	1,004	9	1,813	91	1,961	4
Total	665,074	8,906	678,423	6,502	663,367	7,161	604,049	8,032	538,115	9,330
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	21,867	280,504	22,441	291,010	13,685	313,077	9,919	307,267	19,496	273,417
Cuba	0	47,460	0	38,767	0	16,433	0	11,352	0	-------
Netherlands Indies	15	27,265	0	33,416	0	28,695	0	24,456	0	[5] 10,267
Philippine Islands	0	25,810	0	29,077	0	35,253	0	28,526	0	-------
British India	0	22,365	0	27,261	0	21,531	0	19,217	0	19,496
Germany [6]	1,960	15,079	6,772	4,351	2,839	1,966	2,335	1,187	1,171	5,674
France	8,910	13,493	13,127	14,965	12,594	17,610	12,990	8,031	11,195	8,944
China	0	12,227	0	11,353	0	10,026	0	[7] 9,422	0	9,209
Union of South Africa	27	11,305	447	4,310	1,060	2,510	1,076	1,327	983	2,135
Japan	320	9,171	786	8,396	2,228	7,679	2,388	3,549	2,999	1,645
Peru [4]	0	8,593	0	7,708	0	5,966	0	4,874	0	-------
Siam [3]	0	7,076	0	8,311	0	9,692	0	11,473	0	-------
Indo-China	162	6,275	86	7,321	[8] 31	6,208	[8] 32	6,963	-------	6,304
Greece	0	6,644	0	7,218	0	6,182	0	3,767	0	2,987
Jamaica	0	4,198	0	5,129	0	5,988	0	5,242	0	5,804
Algeria	186	3,694	1,054	6,057	88	7,069	[8] 155	[8] 6,973	-------	-------
Trinidad and Tobago	0	3,181	0	4,130	0	4,533	0	4,142	0	4,683
Tunis	0	2,343	0	3,118	0	3,242	0	3,304	0	3,446
Ceylon	0	1,602	0	2,332	0	1,647	0	1,533	0	1,668
Brazil	0	1,431	0	1,205	0	494	0	317	0	-------
Argentina	15	1,418	17	1,550	13	1,049	14	842	12	680
Egypt	353	1,356	123	1,808	3	1,780	3	1,297	0	1,342
Austria [6]	213	1,214	676	1,384	395	1,802	207	668	174	485
Poland	34	327	7	267	1	239	0	65	0	69
Total	34,062	514,031	45,536	520,444	32,937	510,671	29,119	465,794	36,030	358,255

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Exports include powdered milk.
[4] Imports include powdered milk.
[5] Java and Madura only.
[6] Includes some powdered milk.
[7] Figures for Manchuria not included after June 1932.
[8] Figures for 12 months ended Mar. 31 of following year.

Bureau of Agricultural Economics; official sources except where otherwise stated.

TABLE 398.—*Milk, standard or grade B: Retail price* [1] *per quart, delivered to family trade in cities, 1922–34*

City	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Boston	13.6	14.3	13.4	13.9	14.5	14.7	15.2	15.4	15.3	12.9	10.5	11.0	11.3
New York	14.6	14.8	13.9	14.8	15.0	15.3	15.6	16.0	15.7	14.7	12.0	11.1	12.6
Philadelphia	11.2	12.5	12.0	12.0	12.2	13.0	13.0	13.3	13.0	11.7	10.0	9.9	11.0
Pittsburgh	12.5	14.3	14.1	14.1	14.0	14.5	14.0	14.2	13.3	11.6	8.9	9.2	10.4
Cleveland	11.4	13.8	13.3	14.0	14.2	14.2	13.9	12.5	12.1	10.7	8.7	8.9	10.5
Indianapolis	10.4	11.8	11.9	11.0	12.0	12.0	12.1	12.3	11.9	10.2	9.4	8.5	9.0
Chicago	12.0	13.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.0	11.2	9.8	9.5
Detroit	12.5	13.8	13.8	13.6	14.0	13.9	14.0	14.0	13.1	11.6	9.1	9.2	10.5
Milwaukee	9.2	10.4	10.8	10.0	10.8	11.0	11.0	11.2	11.4	9.9	8.3	8.4	9.3
Minneapolis	10.4	11.4	11.0	11.3	11.1	11.2	12.0	12.0	11.0	10.0	8.1	7.1	9.2
St. Louis	11.1	13.0	13.0	13.0	13.0	13.0	13.0	13.0	12.9	11.7	10.1	10.1	11.0
Kansas City, Mo	11.9	13.0	13.0	13.0	13.0	13.0	13.4	13.5	13.2	12.2	10.2	9.8	11.0
Washington, D. C	13.3	14.2	14.3	14.2	14.6	15.0	14.9	14.5	14.5	14.1	13.3	12.6	12.9
Jacksonville	16.0	17.0	18.0	18.8	20.2	19.2	18.6	18.6	18.5	15.8	12.7	13.4	14.2
Louisville	10.2	12.4	12.5	12.7	12.5	12.5	12.6	13.0	12.4	11.3	10.0	10.3	11.2
Birmingham	17.1	16.0	16.9	18.0	18.0	17.0	18.0	16.1	16.0	13.5	13.0	13.2	14.0
New Orleans	14.0	14.2	14.3	13.2	14.0	14.0	14.0	14.0	14.0	12.7	10.7	11.0	10.3
Dallas	14.0	15.0	15.0	15.0	12.8	12.4	12.3	13.0	13.0	11.0	9.4	8.5	10.2
Butte	12.2	12.8	13.3	13.4	13.1	13.0	13.0	13.0	13.0	12.4	10.0	10.0	10.0
Denver	10.0	12.0	11.9	11.2	12.0	12.0	12.0	12.0	11.0	10.0	10.0	10.0	10.0
Salt Lake City	8.8	10.1	9.8	10.6	10.3	10.5	10.0	10.0	10.0	9.9	9.0	8.8	10.0
Seattle	12.6	12.5	10.8	12.2	12.6	12.0	11.7	12.2	11.0	10.7	9.6	9.7	10.2
Portland, Oreg	11.5	12.2	11.2	11.4	12.0	11.9	12.0	12.0	12.6	10.4	9.1	9.0	10.2
Los Angeles	14.2	15.0	15.5	14.9	15.0	15.0	15.0	15.0	14.6	12.6	10.5	10.7	10.8
San Francisco	12.6	12.8	14.0	14.0	14.0	14.0	14.0	14.0	14.0	11.8	12.0	11.3	12.0

[1] Dealers' selling prices per quart, delivered to homes.

Bureau of Agricultural Economics; compiled from reports of the Bureau secured through the cooperation of milk distributors, producers' associations, and municipal officers.

TABLE 399.—*Butterfat: Average price per pound received by producers, United States, 1925–34*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	40.6	37.9	41.5	40.5	40.3	39.9	40.5	41.3	42.6	47.1	47.8	47.6	41.9
1926	45.2	43.1	42.9	40.4	39.1	39.3	38.6	38.6	40.5	42.4	44.8	47.9	41.3
1927	46.9	46.8	48.0	47.1	43.6	40.8	40.3	39.4	41.6	44.4	45.8	47.8	43.7
1928	48.5	46.0	46.5	45.4	44.4	43.5	43.3	44.3	46.5	47.0	47.6	49.2	45.6
1929	47.6	47.8	48.3	46.5	45.4	43.6	43.4	43.3	44.6	45.6	43.5	41.9	45.2
1930	36.7	35.4	34.9	37.3	36.5	31.6	31.6	35.2	37.7	37.0	35.3	30.6	34.5
1931	26.2	25.0	27.5	26.4	21.2	20.5	21.1	23.9	26.6	30.3	28.2	27.3	24.8
1932	22.8	19.8	19.5	17.8	16.3	14.6	14.4	17.5	17.6	17.8	18.4	21.1	17.9
1933	18.9	15.8	15.1	16.5	20.2	19.7	23.0	18.4	19.6	20.1	20.4	18.0	18.8
1934	16.1	21.6	23.5	21.0	21.5	22.2	22.1	24.3	24.0	24.3	27.2	28.2	22.7

Bureau of Agricultural Economics. Quotations include some purchases other than for the manufacture of butter. Based on reports of special price reporters. Monthly prices, by States, weighted by number of milk cows Jan. 1, to obtain a price for the United States; yearly price obtained by weighting State yearly acreage by estimated volume sold, 1929–34. Data for earlier years in 1928 Yearbook, table 465. Only monthly prices are comparable.

TABLE 400.—*Creamery butter: Production in factories, United States, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1924	87,468	86,731	95,760	106,012	139,954	161,992	164,443	137,836	115,102	100,536	77,282	82,964	1,356,080
1925	87,121	80,218	92,302	107,023	145,478	164,253	158,920	136,738	108,325	104,520	85,492	91,136	1,361,526
1926	97,893	94,222	112,432	121,049	155,912	178,276	159,554	133,294	116,732	103,068	88,481	90,853	1,451,766
1927	97,965	95,522	111,451	126,415	168,808	188,792	170,484	146,808	113,546	102,399	86,058	88,247	1,496,495
1928	101,045	99,394	111,777	118,849	156,294	181,037	167,601	145,430	119,499	105,894	87,745	92,484	1,487,049
1929	103,519	99,963	114,404	133,684	174,341	192,869	185,317	152,192	123,582	118,116	97,186	101,854	1,597,027
1930	108,382	102,252	115,679	133,271	184,385	189,788	167,559	137,420	122,580	120,247	101,974	111,694	1,595,231
1931	148,354	109,596	126,792	145,367	183,783	194,256	161,296	140,395	120,936	126,569	117,035	123,073	1,667,452
1932	124,320	124,894	133,095	141,741	186,607	190,644	163,370	149,625	127,386	121,849	109,790	120,841	1,694,132
1933	130,245	122,322	133,266	138,306	191,098	201,969	176,829	166,562	140,038	130,454	115,215	116,384	1,762,688

Bureau of Agricultural Economics. Compiled from reports of factories made direct to the Bureau. Figures beginning with the year 1929 are the most complete since these reports were inaugurated in 1918. Some allowance, therefore, should be made for this when comparing production since 1929 with that of previous years. Data for earlier years in 1928 Yearbook, table 461.

TABLE 401.—*Creamery butter* [1] *production in factories, by States, average 1927–31, annual 1932 and 1933*

State	Average 1927–31	1932	1933	State	Average 1927–31	1932	1933
	1,000 pounds	*1,000 pounds*	*1,000 pounds*		*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Maine	283	50	39	Kentucky	19,034	19,868	22,029
New Hampshire	35			Tennessee	16,239	16,518	17,433
Vermont	4,594	2,455	2,383	Alabama	1,676	2,637	2,404
Massachusetts	1,922	1,193	1,263	Mississippi	7,195	8,506	7,855
Rhode Island	53	15	12				
Connecticut	414	333	321	E. South Central	44,144	47,529	49,721
New England	7,301	4,046	4,018	Arkansas	2,142	5,205	5,499
				Louisiana	765	1,885	1,879
New York	10,825	9,777	14,096	Oklahoma	25,282	35,156	39,280
New Jersey	47	37	13	Texas	25,352	34,948	36,543
Pennsylvania	11,211	11,086	11,615				
				W. South Central	53,541	77,194	83,201
Middle Atlantic	22,083	20,900	25,724				
				Wyoming	2,168	2,316	2,464
Ohio	79,274	81,140	83,076	Colorado	21,809	21,974	23,909
Indiana	63,357	75,507	76,508	New Mexico	687	927	952
Illinois	64,917	70,433	68,106	Idaho	24,235	28,559	29,420
Michigan	68,051	78,609	79,637	Arizona	2,172	2,484	1,822
Wisconsin	159,672	170,399	157,933	Utah	10,896	12,638	12,754
				Nevada	2,119	1,857	1,846
E. North Central	435,271	476,088	465,260	Montana	16,293	14,182	14,795
Minnesota	279,216	281,659	299,872	Mountain	80,379	84,937	87,962
Iowa	204,668	219,531	239,125				
Missouri	74,326	81,702	86,138	Washington	31,820	35,612	34,146
North Dakota	39,337	49,336	50,799	Oregon	24,451	29,029	27,308
South Dakota	38,109	39,700	43,393	California	73,527	73,322	76,194
Nebraska	92,059	85,660	93,361				
Kansas	58,261	74,587	81,969	Pacific	129,798	137,963	137,648
W. North Central	785,976	832,175	894,657	Total	1,569,861	1,694,132	1,762,688
Delaware	43	56	55				
Maryland	160	61	784				
District of Columbia							
Virginia	5,762	6,060	5,910				
West Virginia	364	440	454				
North Carolina	2,040	2,805	2,878				
South Carolina	473	924	948				
Georgia	2,378	2,638	3,247				
Florida	148	316	221				
South Atlantic	11,368	13,300	14,497				

[1] Includes whey butter.

Bureau of Agricultural Economics; the compilations are made from reports of factories to the Bureau.

TABLE 402.—*Butter: Receipts, gross weight,* [1] *at 5 markets, 1919–34*

Year	New York	Chicago	Philadelphia	Boston	San Francisco	Year	New York	Chicago	Philadelphia	Boston	San Francisco
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*		*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1919	226,698	185,779	51,191	73,223	19,663	1927	261,322	235,200	81,727	84,617	26,709
1920	164,608	176,746	48,630	72,993	24,412	1928	250,593	230,514	84,495	87,324	24,032
1921	213,978	193,593	58,926	74,303	25,264	1929	265,760	244,632	87,386	81,183	25,155
1922	241,604	213,101	64,551	80,473	27,778	1930	268,070	233,638	83,762	72,455	24,738
1923	243,764	225,892	68,598	82,659	25,520	1931	274,218	243,695	90,585	77,200	26,692
1924	248,759	258,083	76,731	86,921	26,260	1932	282,520	223,428	92,243	81,984	28,750
1925	244,127	254,308	72,064	82,476	28,680	1933	290,499	261,001	92,387	88,275	29,017
1926	252,742	236,546	79,345	83,243	27,666	1934	263,256	228,241	88,947	90,535	27,585

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 403.—*Butter: Receipts, gross weight,[1] at 5 markets, by months, 1932–34, and total, 1925–34*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
New York:													
1932	23,243	24,212	24,578	22,382	30,222	32,237	25,276	24,220	19,090	18,235	18,550	20,275	282,520
1933	25,238	21,009	23,328	21,215	27,824	29,189	26,896	27,328	20,892	23,173	22,111	22,246	290,449
1934	22,696	18,711	22,960	21,109	25,838	24,407	24,609	24,058	21,025	22,555	17,510	17,778	263,256
Chicago:													
1932	18,318	16,639	17,281	18,006	22,876	27,561	22,981	19,750	16,493	14,392	13,913	15,218	223,428
1933	15,779	15,097	16,821	16,905	25,017	31,627	27,308	26,966	26,888	21,100	18,979	18,514	261,001
1934	13,919	13,413	16,770	16,005	23,974	27,919	25,666	23,695	20,045	18,281	15,621	12,933	228,241
Philadelphia:													
1932	7,217	8,151	7,875	7,848	9,838	10,322	7,085	6,568	6,538	6,603	7,264	6,934	92,243
1933	8,307	7,680	8,717	8,061	9,682	9,584	7,129	7,773	6,582	6,063	6,350	6,459	92,387
1934	7,976	6,760	8,467	7,469	8,438	8,507	8,054	7,792	6,794	6,689	5,789	6,212	88,947
Boston:													
1932	5,984	5,947	6,090	6,714	9,020	9,952	8,543	7,762	5,974	4,880	5,843	5,275	81,984
1933	6,664	5,860	6,892	7,009	9,022	10,388	9,293	8,611	6,433	6,041	5,421	6,641	88,275
1934	6,292	6,523	7,657	6,869	9,261	9,150	9,310	8,799	7,055	7,638	5,928	6,053	90,535
San Francisco:													
1932	2,013	2,022	2,390	2,995	3,597	3,157	2,628	2,107	1,840	2,019	1,664	2,318	28,750
1933	2,305	1,691	2,375	1,955	3,072	3,133	2,871	2,628	2,223	1,936	2,199	2,629	29,017
1934	1,724	1,454	2,072	2,700	3,040	3,276	2,634	2,060	1,745	2,065	2,860	1,955	27,585
Total:													
1925	44,825	41,785	48,351	50,035	67,454	88,024	82,918	68,341	53,303	51,599	42,099	42,993	681,727
1926	46,809	46,809	54,646	53,990	64,653	89,993	81,053	59,849	52,985	45,280	40,588	42,825	679,480
1927	44,756	45,502	53,633	57,298	75,535	89,773	79,670	68,055	50,055	45,425	39,895	39,978	689,575
1928	50,095	47,797	54,300	52,158	63,582	81,318	75,901	64,531	52,481	48,907	42,796	43,092	676,958
1929	52,490	48,557	53,979	56,881	73,879	81,180	79,442	64,103	51,972	50,246	44,739	46,648	704,116
1930	50,875	47,966	55,180	59,127	74,504	82,334	72,662	52,334	47,744	45,528	43,118	51,291	682,663
1931	53,340	50,529	57,011	62,633	72,275	86,676	68,326	52,659	50,083	51,242	52,486	55,130	712,390
1932	56,775	56,971	58,214	57,945	75,553	83,229	66,513	60,407	49,935	46,129	47,234	50,020	708,925
1933	58,293	51,337	58,133	55,145	74,617	83,921	73,497	73,306	63,018	58,313	55,060	56,489	761,129
1934	52,507	46,861	57,926	54,152	70,551	73,259	70,273	66,404	56,664	57,228	47,708	44,931	698,564

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 404.—*Creamery butter: Cold-storage holdings,[1] United States, 1925–34*

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1925	65,694	45,748	28,789	10,875	3,739	13,036	63,687	109,075	128,403	114,172	94,916	74,754
1926	52,785	39,381	26,313	17,392	17,527	30,561	86,897	131,152	138,151	125,342	100,871	64,381
1927	34,347	17,952	7,952	3,044	3,436	25,404	89,996	145,147	163,701	147,396	118,679	83,224
1928	46,289	28,273	14,404	5,716	5,109	15,952	69,750	120,437	136,175	128,071	105,811	70,985
1929	43,783	24,747	11,910	5,532	5,883	28,369	91,962	151,621	168,952	158,541	138,405	111,650
1930	81,935	60,230	46,530	30,556	22,957	50,378	106,522	145,061	143,089	131,489	109,646	88,012
1931	63,401	46,792	30,672	18,010	17,195	35,155	89,172	115,121	104,678	80,152	56,229	42,242
1932	26,643	22,506	15,243	9,094	10,394	29,160	84,269	110,247	107,259	89,490	66,828	37,207
1933	22,043	17,833	11,580	9,255	9,398	35,159	106,378	150,934	175,476	174,713	160,463	138,166
1934 [2]	111,249	75,995	36,853	15,351	11,838	27,161	70,148	108,748	120,467	125,047	111,073	81,034

[1] Quantities given are net weights.
[2] Amounts of butter purchased by the Federal Surplus Relief Corporation are included in these figures for year 1934.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments. Data for earlier years in 1928 Yearbook, table 462.

TABLE 405.—*Butter: Receipts, gross weight,*[1] *at 5 markets, by State of origin, 1930–34*

Market and origin	1930	1931	1932	1933	1934
NEW YORK	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Ala.	159	110	67	1	-------
Ark.	153	224	26	129	-------
Calif.	82	48	33	-------	193
Ga.	137	120	181	2	1
Ill.	34,307	35,186	20,198	15,778	19,170
Ind.	4,799	5,106	5,494	5,633	5,482
Iowa.	74,630	74,145	83,428	83,752	79,305
Kans.	7,512	7,136	12,066	15,582	10,394
Ky.	573	549	933	870	922
Md.	240	15	23	-------	107
Mass.	87	206	74	-------	107
Mich.	8,802	12,691	7,317	7,666	5,439
Minn.	65,883	62,081	75,812	82,537	68,284
Miss.	623	795	40	572	476
Mo.	4,345	5,582	5,856	5,850	5,413
Mont.	337	28	-------	5	28
Nebr.	26,825	29,877	33,197	33,871	37,235
N. J.	1	112	381	30	-------
N. Y.	7,119	4,837	2,373	4,757	5,159
N. C.	215	55	28	9	1
N. Dak.	2,514	5,798	5,767	4,613	2,964
Ohio.	6,925	7,155	5,890	7,576	6,849
Okla.	771	1,417	2,767	1,928	898
Pa.	1,982	1,850	2,047	1,426	1,315
S. Dak.	1,151	984	1,570	2,251	1,389
Tenn.	2,465	1,614	1,501	815	735
Tex.	995	930	1,877	2,318	1,246
Va.	244	273	221	354	633
Wash.	29	26	32	63	105
Wis.	13,917	14,503	13,110	11,692	8,909
Other States.	201	165	128	369	497
Canada.	47	600	83	-------	-------
Total.	268,070	274,218	282,520	290,449	263,256
CHICAGO					
Ark.	118	229	966	1,656	1,559
Colo.	780	242	126	761	369
Idaho.	27	-------	76	285	-------
Ill.	15,594	20,061	19,274	17,846	16,882
Ind.	1,217	1,375	3,821	5,620	4,226
Iowa.	39,606	42,450	35,898	46,621	41,231
Kans.	9,928	15,283	20,271	25,954	20,751
Ky.	1,353	989	397	1,321	114
Mich.	576	877	1,551	5,924	4,957
Minn.	46,380	39,550	25,534	27,362	24,746
Miss.	143	290	352	441	35
Mo.	12,487	14,866	16,668	18,481	15,871
Mont.	159	3	25	60	180
Nebr.	16,225	15,136	13,918	18,281	14,833
N. Y.	107	28	9	41	17
N. Dak.	2,384	3,053	1,720	2,244	3,134
Ohio.	251	607	128	114	84
Okla.	3,104	4,507	6,763	6,931	4,023
S. Dak.	13,496	12,855	10,666	15,045	11,243
Tenn.	75	31	107	479	85
Tex.	1,483	2,920	4,079	5,050	1,238
Wis.	68,047	68,190	61,009	60,227	62,413
Other States.	98	153	70	257	250
Total.	233,638	243,695	223,428	261,001	228,241
PHILADELPHIA					
Ala.	17	103	164	-------	1
Ill.	4,652	9,166	4,485	2,751	4,046
Ind.	1,647	1,298	1,412	2,208	2,760
Iowa.	6,220	6,825	8,083	10,318	11,172

Market and origin	1930	1931	1932	1933	1934
PHILA.—con.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Kans.	70	387	729	303	412
Ky.	111	365	520	778	937
Md.	72	41	3	143	258
Mich.	1,342	3,029	335	174	91
Minn.	52,743	50,864	56,149	55,563	48,204
Miss.	268	335	1,366	280	69
Mo.	1,767	3,115	3,511	2,975	2,383
Nebr.	2,824	4,083	4,333	6,292	7,780
N. Y.	694	859	255	122	1,277
N. C.	148	77	108	14	34
Ohio.	1,854	1,261	1,230	962	594
Pa.	626	656	624	356	323
S. Dak.	215	401	736	1,030	206
Tenn.	1,967	973	1,294	1,272	330
Tex.	222	842	1,456	1,098	518
Va.	665	990	776	1,040	900
W. Va.	55	66	13	71	216
Wis.	5,395	4,185	3,210	3,288	4,256
Other States.	188	640	1,451	1,349	2,180
Canada.	-------	24	-------	-------	-------
Total.	83,762	90,585	92,243	92,387	88,947
BOSTON					
Colo.	83	129	-------	15	50
Ill.	12,065	13,493	12,535	12,460	13,766
Ind.	2,842	2,917	2,951	2,197	2,308
Iowa.	4,397	3,173	3,690	6,896	11,778
Kans.	796	587	518	802	1,830
Ky.	222	47	104	125	117
Mass.	3	99	113	210	47
Mich.	993	1,279	1,073	698	434
Minn.	29,119	32,719	25,627	30,917	27,492
Mo.	2,408	2,224	3,345	4,127	4,752
Mont.	237	87	-------	-------	-------
Nebr.	7,438	4,746	4,756	4,547	4,576
N. H.	2	5	3	1	-------
N. Y.	1,208	1,954	483	542	164
N. Dak.	880	1,863	7,716	8,178	7,091
Ohio.	2,942	4,267	3,614	3,297	3,635
Okla.	540	964	1,927	1,979	2,342
Pa.	81	250	45	-------	26
S. Dak.	1,911	2,562	6,667	5,453	3,909
Tenn.	119	143	-------	-------	-------
Tex.	251	461	460	293	317
Vt.	185	154	71	126	14
Wis.	3,292	2,885	5,853	5,242	5,682
Other States.	441	192	433	170	205
Total.	72,455	77,200	81,984	88,275	90,535
SAN FRANCISCO					
Calif.	18,110	18,473	20,510	20,483	18,287
Colo.	93	144	159	400	590
Idaho.	1,223	1,515	965	1,835	463
Mont.	2,018	1,424	1,199	1,107	1,021
Nebr.	87	37	252	61	641
Nev.	184	14	26	53	19
Oreg.	2,489	3,687	4,712	4,201	4,794
Utah.	35	38	231	282	189
Wash.	495	1,340	543	529	504
Other States.	4	29	153	66	1,077
Total.	24,738	26,692	28,750	29,017	27,585

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 406.—*Butter, 92-score creamery: Average wholesale price per pound, at 5 leading markets, 1925–34*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
New York:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	39.94	40.82	47.51	44.54	42.58	42.49	42.86	43.45	48.18	50.88	50.66	49.20	45.26
1926	44.88	44.89	42.82	39.42	40.84	41.17	40.50	41.79	44.62	46.89	50.58	54.69	44.42
1927	49.15	51.55	50.18	50.35	43.46	42.52	41.72	41.88	46.46	48.39	49.79	51.87	47.28
1928	48.76	46.62	49.44	45.49	44.93	44.13	44.93	46.94	48.75	47.79	50.57	50.46	47.40
1929	47.94	49.89	48.45	45.35	43.54	43.54	42.42	43.45	46.22	45.56	42.70	41.10	45.01
1930	36.63	35.70	37.27	38.53	34.85	32.93	35.31	38.92	39.77	39.98	36.09	32.18	36.51
1931	28.50	28.40	28.88	26.10	23.70	23.33	24.95	28.12	32.50	33.76	30.93	30.55	28.31
1932	23.59	22.46	22.61	20.08	18.84	16.99	18.18	20.31	20.76	20.72	23.30	24.11	21.00
1933	19.85	18.65	18.17	20.66	22.54	22.84	24.53	21.31	23.60	24.04	23.60	20.08	21.66
1934	19.84	25.35	25.35	23.66	24.49	24.88	24.49	27.38	25.78	26.93	29.36	30.95	25.70
Chicago:													
1925	38.86	40.09	47.66	42.96	40.74	42.15	42.20	41.63	46.35	49.23	49.58	47.45	44.08
1926	43.01	43.09	41.53	38.33	39.43	39.13	38.51	40.12	43.09	45.93	48.90	52.54	42.80
1927	48.08	50.41	49.36	48.13	41.49	40.42	39.98	41.45	45.03	46.23	48.23	50.51	45.78
1928	46.83	45.62	48.14	43.92	43.41	42.99	43.82	45.80	47.08	46.45	48.86	49.10	46.00
1929	46.59	49.22	47.63	44.14	42.06	42.38	41.31	42.50	44.93	43.96	41.31	39.32	43.78
1930	35.10	35.30	37.25	37.23	33.72	32.09	34.59	37.98	38.16	37.75	33.70	30.51	35.28
1931	27.35	27.15	28.69	24.37	22.37	22.30	23.85	27.19	30.26	32.18	29.75	29.15	27.05
1932	23.02	21.63	22.05	18.98	17.11	16.29	17.71	19.43	20.03	19.79	22.10	22.67	20.07
1933	18.76	17.83	17.63	19.78	21.76	22.36	23.87	20.58	22.67	23.01	22.61	18.65	20.79
1934	19.36	24.35	24.52	22.40	23.22	24.22	23.63	26.34	24.86	25.91	29.00	29.50	24.78
San Francisco:													
1927	47.48	47.71	45.43	42.21	41.16	41.81	41.62	44.17	46.71	48.42	48.92	48.50	45.34
1928	46.36	45.20	43.41	39.88	41.70	42.98	45.62	47.59	50.26	50.92	49.20	49.74	46.08
1929	45.87	47.45	44.56	43.13	45.02	44.82	44.98	46.11	48.65	48.29	48.00	41.68	45.71
1930	36.46	37.64	37.69	38.75	36.80	34.00	33.94	37.21	38.96	37.12	34.11	33.06	36.31
1931	26.19	28.48	28.23	24.35	25.34	25.00	26.17	29.63	30.54	31.88	32.00	29.70	28.13
1932	24.44	24.00	22.87	20.00	19.48	17.92	18.88	20.74	21.00	21.88	25.65	26.85	21.98
1933	20.12	18.82	19.31	20.60	22.92	23.00	24.00	21.35	20.58	20.84	22.22	19.58	21.11
1934	18.75	23.84	23.37	21.16	21.10	22.50	23.12	26.50	27.66	29.04	32.74	30.86	25.05
Philadelphia:													
1925	40.99	41.74	48.34	45.71	43.58	43.31	43.79	44.29	48.96	52.15	51.81	50.02	46.22
1926	45.30	45.30	43.10	40.19	41.78	42.08	41.35	42.75	45.62	47.88	51.54	55.68	45.23
1927	50.04	52.09	51.13	51.29	44.29	43.21	42.64	42.91	47.46	49.39	50.72	52.87	48.17
1928	49.74	47.59	50.36	46.48	45.92	45.18	45.94	48.05	49.75	48.73	51.55	51.47	48.39
1929	48.69	50.51	49.22	46.34	44.54	44.55	43.42	44.45	47.22	46.56	43.78	42.10	45.95
1930	37.66	36.48	38.10	39.53	35.87	33.94	36.32	39.92	40.78	40.96	37.11	33.17	37.49
1931	29.50	29.40	29.88	27.09	24.70	24.33	25.96	29.11	33.50	34.76	31.93	31.58	29.31
1932	24.64	23.43	23.63	21.05	19.84	17.99	19.18	21.31	21.77	21.73	24.30	25.11	22.00
1933	20.88	19.65	19.09	21.62	23.51	23.59	25.51	22.29	24.60	25.04	24.40	20.85	22.59
1934	20.84	26.35	26.35	24.66	25.48	25.89	25.49	28.38	26.78	27.93	30.38	31.95	26.71
Boston:													
1925	40.69	41.11	47.42	45.30	42.98	43.26	43.54	43.98	47.88	50.60	50.27	49.16	45.52
1926	45.25	45.38	43.26	39.96	41.16	41.56	40.88	41.87	44.72	46.54	48.38	53.69	44.39
1927	49.53	51.86	50.95	51.08	43.76	52.62	41.80	42.06	46.24	47.80	48.02	49.84	47.13
1928	48.62	46.93	49.62	46.00	45.38	44.47	45.32	47.12	48.73	47.96	50.15	50.24	47.54
1929	47.87	49.98	48.85	46.22	44.02	44.06	42.77	43.98	46.47	45.69	42.85	41.36	45.34
1930	37.08	36.48	37.82	39.04	35.42	33.38	35.73	39.38	39.94	39.96	36.17	32.56	36.91
1931	29.10	28.91	29.38	26.73	24.30	23.97	25.48	28.27	32.50	34.15	31.41	31.00	28.77
1932	24.41	23.33	23.19	20.65	19.15	17.64	19.02	20.77	21.25	21.21	23.75	24.71	21.59
1933	20.54	19.28	19.12	21.50	23.25	23.78	25.54	22.27	24.06	24.88	24.56	20.91	22.47
1934	20.90	26.30	26.41	24.58	25.70	25.86	25.45	28.20	26.62	27.52	29.91	31.63	26.59

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the markets. These wholesale prices are based on open-market sales for cash or short-time credit, consideration being given to the prices at which the larger quantities are sold. New York data for earlier years in 1930 Yearbook, table 461.

TABLE 407.—*Butter, creamery: Average wholesale [1] price per pound, all scores, by months, New York and Chicago, 1934*

NEW YORK

Month	93	92	91	90	89	88	87	Centralizer car-lots		
								90	89	88
January	20.59	19.84	19.60	19.49	19.12	18.73	18.21	19.49	19.12	18.72
February	26.10	25.35	25.05	24.77	24.39	23.71	22.77	24.77	24.39	23.71
March	26.09	25.35	25.07	24.89	24.44	-------	-------	24.89	24.44	-------
April	24.41	23.66	23.42	23.33	23.02	-------	-------	23.33	23.02	-------
May	25.23	24.49	24.10	23.68	23.31	22.58	21.94	23.69	23.31	-------
June	25.64	24.87	24.63	24.27	23.77	23.39	22.99	24.27	23.77	-------
July	25.24	24.49	24.14	23.81	23.25	22.86	22.42	23.81	23.25	-------
August	28.13	27.38	26.90	26.27	25.30	24.55	24.05	26.28	25.30	24.64
September	26.53	25.78	25.40	25.05	24.50	24.00	23.59	25.04	24.50	24.00
October	27.68	26.93	26.52	25.82	25.02	24.57	24.18	25.81	25.02	24.57
November	30.13	29.36	28.89	28.10	27.39	26.86	26.36	28.10	27.39	26.86
December	31.70	30.94	30.48	29.54	28.48	27.80	27.33	29.54	28.48	27.80
Average	26.46	25.70	25.35	24.92	24.33	23.91	23.38	24.92	24.33	-------

CHICAGO

January	20.06	19.36	18.96	18.69	18.34	17.96	17.27	19.12	18.62	17.90
February	25.01	24.35	23.97	23.50	23.03	22.52	21.68	24.09	23.24	22.24
March	25.14	24.52	24.18	23.81	23.35	22.72	22.01	24.42	23.58	22.67
April	23.10	22.40	22.14	21.96	21.67	21.36	20.80	22.33	21.78	21.35
May	23.97	23.22	22.80	22.51	22.18	21.74	21.10	23.15	22.37	21.79
June	24.97	24.22	23.61	23.17	22.60	22.11	21.40	24.14	23.08	22.26
July	24.38	23.63	22.86	22.55	22.91	21.30	20.50	23.71	22.34	21.44
August	27.11	26.34	25.44	25.04	24.33	23.53	22.68	26.08	24.76	23.69
September	25.52	24.82	24.32	24.02	23.64	23.10	22.53	24.69	23.74	23.10
October	26.66	25.91	25.65	25.05	24.24	23.46	22.75	25.42	24.34	23.46
November	29.75	29.00	28.73	27.23	26.24	25.45	24.72	27.36	26.35	25.49
December	30.25	29.50	28.95	28.03	27.30	26.40	25.60	28.41	27.38	26.44
Average	25.49	24.77	24.30	23.80	23.24	22.64	21.92	24.41	23.46	22.65

[1] Principally sales by first-hand receivers to jobbers, chain stores, or other large distributors, in less than carload lots, except as otherwise indicated.

Bureau of Agricultural Economics.

TABLE 408.—*Butter: Average export price per pound in Copenhagen, Denmark, 1925-34*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	42.0	45.4	46.1	38.9	36.9	39.4	40.5	44.2	45.7	46.5	44.6	37.8	42.5
1926	36.5	40.2	38.8	36.2	34.8	35.7	35.4	36.1	36.6	36.3	34.9	37.1	36.6
1927	36.4	39.3	36.8	35.2	32.9	33.2	32.2	35.0	39.6	39.4	41.2	38.0	36.6
1928	35.4	37.5	40.0	36.8	35.4	34.9	36.4	38.0	40.2	39.5	40.6	42.4	38.1
1929	39.1	39.0	35.5	32.8	33.4	34.9	35.3	35.6	39.7	40.5	38.7	35.8	36.7
1930	34.8	35.3	31.7	27.4	26.3	27.7	30.3	29.2	29.9	30.1	27.2	27.3	29.8
1931	26.4	29.5	27.0	24.3	23.3	23.3	23.2	24.5	24.2	21.2	19.6	18.8	23.8
1932	16.7	19.8	16.3	15.6	13.6	13.2	14.8	14.0	15.7	14.7	14.5	13.7	15.2
1933	12.2	12.3	11.0	10.8	11.9	12.2	14.8	16.2	19.0	18.1	21.0	19.1	14.9
1934	14.3	14.8	15.0	13.0	13.6	13.7	14.1	18.2	18.2	18.9	21.1	21.5	16.4

Bureau of Agricultural Economics. Compiled from Danish Butter Journal (Smor Tidende) official quotations in kroner per 100 kilograms, as fixed each Thursday by 2 committees, representing dairy and commercial interests respectively. For years 1882–1924, see the 1923 Yearbook, table 450, and 1928 Yearbook, table 467. Converted at monthly average rates of exchange as given in Federal Reserve Bulletin, except for period January 1927–August 1931, when par of exchange was used.

TABLE 409.—*Butter: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Denmark	310,967	1,886	372,553	1,388	378,423	1,596	347,882	923	332,265	783
New Zealand	156,179	6	211,035	1	222,719	12	244,781	1	295,148	0
Australia [2]	100,464	3,448	126,598	4	191,014	1	229,055	1		
Netherlands	100,310	4,548	92,393	4,396	72,660	8,886	44,922	9,321	62,551	1,449
Russia	62,901	0	23,197	0	68,023	0	68,197	0	82,022	0
Argentina	50,410	7	51,156	7	51,167	6	55,915	6	30,659	2
Irish Free State	58,409	6,215	58,766	3,342	42,307	3,324	36,931	2,632	45,232	22
Sweden	37,607	133	58,805	19	43,045	39	29,866	32	37,758	73
Finland	31,509	42	37,726	8	38,367	0	32,020	0	26,201	
Latvia	24,641	29	40,630	49	41,311	24	41,001	1	34,494	0
Estonia	21,439	6	31,010	0	31,844	0	27,626	0	20,336	4
Poland	17,426	350	26,713	30	27,470	32	2,707	866	3,547	25
France	15,492	6,600	10,722	12,922	9,765	40,837	7,024	26,140	6,829	20,307
Italy	4,043	1,600	1,851	3,130	1,283	6,203	827	4,398	834	4,698
Yugoslavia	571	2	655	1	668	0	339	2	318	0
Total	992,368	24,872	1,143,810	25,297	1,220,066	80,960	1,169,093	44,323	978,194	27,363
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	1,465	647,350	1,115	744,623	869	863,365	1,238	902,601	1,328	979,867
Germany	275	249,016	578	293,557	269	220,946	478	153,262	19	130,389
Switzerland	155	18,070	40	18,795	17	23,359	7	8,152	2	1,146
Canada	8,510	14,638	1,180	38,606	10,680	2,821	3,506	238	4,437	1,377
Netherlands Indies	0	9,758	0	10,910	0	11,787	0	11,711	0	[3] 10,051
United States	4,558	6,227	2,954	2,472	1,984	1,882	1,605	1,014	1,191	1,022
Belgium	2,470	5,856	2,647	22,630	2,756	41,585	1,841	46,928	725	27,352
Austria	932	2,921	4,111	544	2,861	1,565	1,565	802	2,606	161
Union of South Africa	839	2,420	2,904	1,690	4,521	1,244	4,328	1,110	2,508	2,640
Egypt	53	2,341	23	2,935	81	2,521	389	1,545	233	1,816
Algeria	48	2,085	81	3,432	73	4,635	[2] 36	[2] 3,939		
Norway	421	1,846	236	1,529	1,629	381	2,429	91	904	146
British Malaya	187	1,811	193	2,067	104	1,863	108	1,621	118	1,585
Cuba	5	1,780	38	448	110	207	41	58		
Peru	6	1,708	4	623	2	270	1	211	3	
China	0	1,661	0	1,417	0	1,468	0	[4] 1,423	0	1,547
Greece	0	1,251	[2] 0	1,420	[2] 1	2,060	[2] 3	1,198		604
Philippine Islands	0	1,200	0	1,188	0	1,758	0	1,336	0	
Czechoslovakia	605	1,174	694	716	661	4,107	27	2,704	110	1,495
Trinidad and Tobago	0	1,139	0	1,058	0	1,086	0	1,024	0	1,217
Spain	328	363	160	328	88	122	45	41	21	15
Total	20,857	974,615	16,958	150,988	26,706	1,189,032	17,647	1,141,009	14,205	1,162,430

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Java and Madura only.
[4] Does not include Manchuria after June 30, 1932.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Butter includes all butter made from milk, melted and renovated butter, but does not include margarine or oleomargarine, cocoa butter, or ghee.

TABLE 410.—*Cheese, whole-milk American Cheddar: Production in factories, United States, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1924	17,718	18,886	22,955	24,597	33,657	43,517	40,716	33,602	30,539	26,210	17,252	15,046	324,695
1925	16,834	17,991	21,598	26,889	38,012	45,782	43,706	37,659	31,548	28,253	20,349	18,619	347,240
1926	19,519	19,984	25,216	29,221	38,598	46,320	40,164	33,239	28,809	23,164	16,386	15,295	335,915
1927	16,660	17,085	21,318	24,533	34,704	41,489	38,195	31,944	25,783	23,012	16,717	16,337	307,777
1928	18,010	19,005	23,451	28,221	37,324	45,012	40,072	34,229	30,342	25,134	18,013	16,440	335,253
1929	19,925	19,522	24,059	30,181	42,483	51,702	48,007	37,811	30,824	25,961	19,655	20,184	370,314
1930	23,666	23,031	28,502	34,143	48,545	53,887	45,582	33,555	26,705	23,581	18,781	18,838	378,816
1931	21,941	22,018	27,571	32,940	44,439	49,513	40,595	32,956	29,139	30,470	23,016	20,050	374,648
1932	20,895	21,993	25,484	29,706	41,933	48,534	40,205	34,796	31,510	29,267	23,601	22,819	370,743
1933	24,877	23,868	28,571	32,356	43,564	54,653	48,206	42,857	35,620	29,864	21,016	23,179	408,631

Bureau of Agricultural Economics. Compiled from reports of factories made direct to the Bureau. Figures beginning with the year 1929 are the most complete since these reports were inaugurated in 1918. Some allowance, therefore, should be made for this when comparing production since 1929 with that of previous years. Data for earlier years in 1928 Yearbook, table 468.

TABLE 411.—*Cheese, whole-milk American Cheddar: Production in factories, by States, average 1927–31, annual 1932 and 1933*

State	Average, 1927–31	1932	1933	State	Average, 1927–31	1932	1933
	1,000 lb.	*1,000 lb.*	*1,000 lb.*		*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Vermont	709	132	386	South Atlantic	753	845	677
Other New England States	97	76	60				
				Tennessee	1,626	2,386	2,686
New England	806	208	446	Others	4,761	8,523	10,946
				East South Central	6,387	10,909	13,632
New York	27,519	22,586	26,286				
New Jersey	61			West South Central	2,986	11,363	15,615
Pennsylvania	1,732	1,301	1,828				
				Wyoming	2,120	1,514	1,374
Middle Atlantic	29,312	23,887	28,114	Idaho	7,127	6,087	5,106
				Utah	2,716	3,156	4,493
Ohio	902	1,355	1,939	Montana	1,765	1,886	1,990
Indiana	7,909	14,417	16,042	Others	2,566	2,171	2,279
Illinois	4,498	8,529	10,345				
Michigan	7,077	6,495	8,932	Mountain	16,294	14,814	15,242
Wisconsin	236,257	227,751	238,692				
				Washington	4,332	7,783	7,524
East North Central	256,643	258,547	275,950	Oregon	13,114	15,532	15,251
				California	4,653	8,130	11,936
Minnesota	9,043	7,578	8,892				
Iowa	803	1,016	1,383	Pacific	22,099	31,445	34,711
Missouri	2,779	3,551	4,584				
Others	5,457	6,580	9,385	Total	353,362	370,743	408,631
West North Central	18,082	18,725	24,244				

Bureau of Agricultural Economics. The compilations are made from reports of factories to the Bureau.

TABLE 412.—*Cheese: Receipts, gross weight,[1] at 5 markets, 1919–34*

Year	New York	Chicago	Philadelphia	Boston	San Francisco	Year	New York	Chicago	Philadelphia	Boston	San Francisco
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*		*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1919	65,045	81,019	21,392	17,722	12,089	1927	46,937	123,633	20,396	14,588	12,694
1920	47,004	81,597	16,866	12,997	10,203	1928	48,272	97,264	21,039	17,362	12,676
1921	51,981	85,849	20,952	13,208	9,632	1929	50,911	80,823	19,973	14,899	12,293
1922	50,109	107,724	19,324	13,521	9,157	1930	52,165	58,866	21,167	16,882	13,119
1923	49,425	123,645	18,363	15,914	11,690	1931	56,005	41,555	20,949	17,240	12,907
1924	42,959	130,024	16,866	13,725	11,482	1932	61,195	42,804	22,081	16,593	14,349
1925	46,163	131,129	19,095	15,314	11,855	1933	59,850	36,889	23,280	17,680	14,506
1926	45,363	115,104	19,454	15,437	12,530	1934	69,293	32,880	24,815	19,422	13,648

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the various markets.

TABLE 413.—*Cheese: Receipts, gross weight,[1] at 5 markets, by months, 1932–34, and total, 1925–34*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
New York:													
1932	4,996	5,158	4,611	3,945	5,134	5,702	6,590	5,850	4,626	4,887	4,902	4,794	61,195
1933	4,338	4,106	5,041	4,904	6,509	5,209	6,589	4,728	4,760	5,027	4,088	4,551	59,850
1934	6,426	5,207	3,844	3,806	6,748	5,959	7,354	7,080	5,294	6,851	6,353	4,371	69,293
Chicago:													
1932	3,177	3,284	3,178	3,201	3,723	4,061	3,942	4,065	3,635	4,230	3,170	3,138	42,804
1933	2,959	2,663	3,222	3,235	3,603	3,818	3,483	2,985	2,611	2,949	2,623	2,738	36,889
1934	2,816	2,995	2,053	2,384	2,966	3,173	3,543	3,593	2,997	2,504	2,279	1,577	32,880
Philadelphia:													
1932	1,434	1,629	1,521	1,618	2,221	2,498	1,973	2,094	1,969	1,590	2,134	1,400	22,081
1933	1,566	1,518	2,250	2,267	2,840	2,009	2,208	1,909	1,728	1,974	1,729	1,282	23,280
1934	2,184	1,808	1,657	1,992	2,588	2,346	2,069	2,708	2,006	1,759	2,032	1,666	24,815
Boston:													
1932	1,045	1,142	1,286	1,093	1,241	1,881	2,013	1,477	1,495	1,263	1,294	1,363	16,593
1933	1,097	975	1,306	1,113	1,425	1,633	2,354	1,392	1,892	1,706	1,558	1,229	17,680
1934	1,563	1,388	1,269	972	1,667	1,791	2,517	2,018	1,407	2,079	1,802	949	19,422
San Francisco:													
1932	710	862	1,163	908	1,653	1,588	1,974	1,369	1,046	1,359	1,005	712	14,349
1933	808	720	906	1,210	1,659	1,320	2,289	1,642	1,180	1,053	773	946	14,506
1934	799	968	1,115	1,399	1,060	1,123	1,004	1,858	1,136	1,084	1,143	959	13,648
Total:													
1925	15,202	12,845	14,898	15,436	18,529	24,025	25,825	24,176	20,520	21,029	17,059	14,012	223,556
1926	14,853	13,568	15,055	15,531	14,972	21,777	21,973	20,736	18,784	18,699	15,954	15,986	207,888
1927	12,707	14,916	14,956	16,922	21,301	22,134	24,134	22,556	21,522	18,996	14,278	13,826	218,248
1928	14,409	13,715	14,654	15,139	16,253	19,216	21,741	18,728	18,222	18,665	14,179	11,692	196,613
1929	13,781	13,877	12,261	12,331	16,750	18,406	20,548	18,605	15,289	14,343	11,829	10,879	178,899
1930	12,526	12,466	12,904	13,026	15,473	17,895	17,435	14,953	14,510	12,225	10,783	10,003	164,199
1931	11,600	10,406	11,717	11,445	12,145	17,480	14,190	14,264	11,948	13,588	10,569	9,304	148,656
1932	11,362	12,075	11,759	10,765	13,972	15,730	16,492	14,855	12,771	13,329	12,505	11,407	157,022
1933	10,768	9,982	12,725	12,729	16,036	13,989	16,923	12,656	12,171	12,709	10,771	10,746	152,205
1934	13,788	12,366	9,938	10,553	15,029	14,392	16,487	17,257	12,840	14,277	13,609	9,522	160,058

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

See 1927 Yearbook, table 443; 1931 Yearbook, table 474, and 1934 Yearbook, table 411, for data for earlier years.

TABLE 414.—*Cheese, American, and all varieties: Cold-storage holdings,[1] United States, 1925–34*

AMERICAN [2]

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1925	49,187	41,552	34,647	27,716	26,147	29,550	46,468	66,634	76,512	78,582	71,913	66,495
1926	58,457	50,339	42,587	38,041	35,597	39,346	54,069	73,681	81,297	77,646	72,491	63,881
1927	56,758	48,106	41,383	37,188	34,332	37,710	52,085	69,119	71,825	67,402	60,766	55,140
1928	49,914	43,837	38,189	33,294	32,177	39,203	56,386	75,862	86,632	84,745	85,126	77,258
1929	71,177	60,772	52,665	48,175	44,983	50,721	66,640	83,914	90,863	89,797	83,737	76,669
1930	68,930	58,972	53,208	46,507	43,239	53,403	74,986	93,773	92,063	90,152	83,674	75,736
1931	67,599	58,516	52,304	45,277	44,792	46,764	63,156	73,693	73,740	70,940	69,611	66,053
1932	60,804	54,360	47,106	42,009	38,951	40,461	53,922	63,667	66,721	68,555	66,813	62,392
1933	57,749	53,532	46,992	41,625	37,321	41,336	67,456	82,771	94,394	99,326	95,831	85,146
1934	77,773	65,476	54,934	49,856	52,217	58,073	79,925	97,018	103,805	108,624	102,832	96,688

ALL VARIETIES

1925	67,558	58,461	50,117	40,480	39,037	42,888	61,992	83,568	95,472	97,777	90,866	84,561
1926	76,649	67,531	58,175	51,285	47,450	52,167	68,771	90,053	98,473	95,385	89,785	81,084
1927	74,217	64,216	56,073	49,835	47,461	52,748	69,302	89,965	92,280	87,080	79,334	72,428
1928	66,184	57,906	50,263	44,710	43,761	51,477	71,353	92,482	104,224	101,251	100,229	92,903
1929	88,832	77,024	67,087	61,223	57,569	64,177	83,627	102,077	110,314	107,831	100,558	92,553
1930	86,075	74,523	67,281	59,928	56,940	72,358	95,221	113,923	112,061	108,767	101,148	91,775
1931	83,288	73,488	66,177	57,711	57,422	60,242	77,989	89,264	91,284	88,564	87,386	84,035
1932	78,318	70,682	60,962	54,021	50,764	52,118	66,531	76,327	79,847	81,406	78,274	73,916
1933	68,714	63,321	55,731	48,806	43,626	48,481	78,715	94,291	108,035	113,131	109,655	99,009
1934	91,970	78,789	67,819	62,153	65,450	71,469	96,960	115,842	122,495	127,363	118,008	109,972

[1] Quantites given are net weight.

[2] The term "American cheese" is intended to cover only those varieties known as "twins," "flats," "daisies," "Cheddars," "longhorns," and "square prints." It does not, therefore, include all kinds of cheese made in the United States.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.

Changes in these tables made due to transference of current trading stocks to cold-storage stocks from Jan. 1, 1927, to Dec. 1, 1931. Data for earlier years in 1928 Yearbook, table 472.

TABLE 415.—*Cheese: Receipts, gross weight,[1] at 5 markets, by State of origin, 1930–34*

Market and origin	1930	1931	1932	1933	1934
NEW YORK	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Ill.	6,145	7,288	9,196	10,957	13,365
Ind.	1,084	1,539	1,074	770	1,788
Iowa	84	26	122	85	103
Mass.	93	68	22	22	15
Mich.	844	704	1,377	1,366	1,129
Minn.	329	266	285	1,100	488
Mo.	13	30	94	132	215
Nebr.	45	115	63	78	1
N. J.	69	8	3	15	3
N. Y.	10,866	8,294	7,289	5,782	5,313
Ohio	617	576	592	466	269
Pa.	466	146	100	92	34
Vt.	43	[2]	6	43	479
Va.	1	[2]	[2]	184	------
Wis.	28,835	35,456	40,657	37,806	45,305
Other states	204	78	87	443	487
Canada	2,427	1,411	228	509	299
Total	52,165	56,005	61,195	59,850	69,293
BOSTON					
Ill.	1,387	1,404	784	691	1,031
Ind.	382	348	216	40	106
Maine	[2]	[2]	1	[2]	------
Mass.	38	25	2	[2]	1
Mich.	132	396	273	352	142
N. H.	5	1	12	[2]	------
N. Y.	2,349	2,310	2,226	3,024	2,737
Ohio	12	76	33	11	19
Pa.	60	1	2	------	55
Vt.	113	54	53	131	50
Wis.	9,492	11,746	12,825	13,074	14,997
Other states	2,910	876	163	356	260
Canada	2	3	3	1	24
Total	16,882	17,240	16,593	17,680	19,422
PHILADELPHIA					
Ill.	2,091	1,880	2,512	2,462	2,770
Ind.	34	146	4	1	47
Iowa	4	3	5	6	24
Mich.	655	668	75	777	350
Minn.	34	285	799	936	435
N. Y.	2,231	1,688	979	974	335
N. Dak.	------	------	2	------	------
Ohio	1	10	66	22	49
Pa.	91	87	51	22	11

Market and origin	1930	1931	1932	1933	1934
PHILADELPHIA—con.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Wis.	15,966	15,945	17,888	18,078	20,794
Other states	60	237	------	2	------
Canada	------	------	------	------	------
Total	21,167	20,949	22,081	23,280	24,815
CHICAGO					
Calif.	37	45	2	2	3
Colo.	22	12	10	23	69
Ill.	1,853	943	4,213	3,658	4,510
Ind.	396	139	41	100	277
Iowa	98	76	43	61	4
Kans.	39	27	4	40	10
Mich.	246	49	93	92	27
Minn.	1,751	1,132	733	1,351	343
Mo.	24	20	33	111	------
Mont.	10	1	------	------	------
N. J.	319	879	156	82	228
N. Y.	2,857	1,323	3,203	2,571	2,589
Ohio	136	9	46	51	79
Pa.	60	23	55	22	74
S. Dak.	16	28	19	76	------
Tex.	5	59	31	3	1
Wis.	49,447	36,424	33,796	28,267	24,353
Other states	683	333	326	248	251
Canada	867	33	------	131	62
Total	58,866	41,555	42,804	36,889	32,880
SAN FRANCISCO					
Calif.	4,213	3,110	3,233	3,489	4,068
Colo.	165	129	81	115	156
Idaho	3,413	2,907	1,781	2,203	1,929
Ill.	221	[2]	33	71	109
Mont.	1	------	------	[2]	5
N. Y.	784	687	337	400	404
Oreg.	5,427	5,093	6,568	5,524	4,858
Utah	28	------	9	38	------
Wash.	13	34	94	69	278
Wis.	759	904	2,210	2,542	1,799
Other states	95	43	3	55	42
Total	15,119	12,907	14,349	14,506	13,648

[1] Gross weight includes container and wrapping.

[2] Not over 500 pounds.

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the various markets.

TABLE 416.—*Cheese, No. 1 American, fresh single daisies: Average wholesale price per pound, New York, by months, 1925–34*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	24	24	24	24	24	24	24	24	24	25	[1] 25	25	24
1926	26	25	23	21	21	21	22	22	23	24	25	26	23
1927	26	26	25	24	24	24	24	25	27	28	27	29	26
1928	------	[1] 25	25	24	24	26	26	26	27	26	25	25	[2] 25
1929	25	24	24	24	23	23	23	23	24	24	24	23	24
1930	21	21	21	21	20	18	18	19	20	19	19	18	20
1931	17	16	16	15	14	14	15	16	17	16	15	14	15
1932	13	13	13	12	12	11	12	14	14	13	13	13	13
1933	12	11	11	12	15	15	15	14	13	13	13	12	13
1934	13	16	15	13	14	15	13	15	14	14	15	15	14

[1] Less than 10 quotations during month.

[2] Based on 11 months' quotations.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the market. These wholesale prices are based upon open market sales made for cash or short-time credit, consideration being given to the prices at which the larger quantities are sold.

TABLE 417.—*Cheese: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Netherlands	198,043	1,292	206,735	1,509	190,457	1,346	170,059	1,075	140,899	808
New Zealand	171,975	4	203,054	7	183,271	5	200,528	2	222,090	5
Canada	120,606	3,419	80,164	1,788	84,788	1,446	86,940	1,167	74,169	968
Italy	76,435	9,818	80,973	12,562	88,947	10,115	66,397	8,806	52,561	9,952
Switzerland	64,236	3,538	66,143	4,238	54,305	8,470	43,700	4,756	45,347	3,779
Denmark	14,740	972	12,626	808	9,383	603	14,535	129	22,219	78
Czechoslovakia	7,843	2,450	8,274	2,961	10,980	3,781	6,123	3,071	2,824	2,917
Australia [2]	6,724	1,212	7,263	154	7,412	24	8,801	60	-------	-------
Finland	5,951	42	4,682	35	5,777	34	7,225	26	9,207	-------
Yugoslavia	4,787	318	4,583	297	4,197	243	2,616	150	3,229	70
Bulgaria	2,150	18	2,466	5	3,141	5	2,601	4	2,579	0
Hungary	1,870	1,720	1,846	955	920	496	693	65	482	35
Russia	[2] 1,390	[2] 110	697	0	110	0	123	0	62	0
Total	676,750	24,913	679,506	25,319	643,688	26,568	610,341	19,311	575,668	18,612
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	4,509	331,101	5,579	345,227	4,047	319,916	4,011	333,118	3,482	337,779
Germany	3,311	149,025	5,411	137,458	7,372	120,403	4,237	108,686	3,875	90,922
United States	4,350	75,680	1,964	68,311	1,673	61,991	1,408	55,623	1,281	48,397
Belgium	1,173	38,709	875	52,049	813	49,590	554	45,779	349	48,386
France	31,257	37,037	32,694	55,036	28,824	69,560	24,536	43,904	25,034	46,106
Algeria	220	7,496	218	10,463	194	11,346	151	11,103	139	10,775
Spain	89	7,109	207	5,835	237	3,866	239	2,481	169	2,490
Austria	1,769	7,056	4,494	5,636	6,233	5,791	3,981	3,703	4,735	2,094
Egypt	152	6,870	121	7,494	129	7,315	298	5,247	125	6,172
Cuba	5	4,764	10	2,867	7	1,378	5	744	-------	-------
Greece	40	3,942	[2] 301	2,301	[2] 189	3,959	[2] 619	1,754	-------	731
Argentina	861	3,681	744	3,777	1,055	1,659	1,470	470	2,075	399
Irish Free State	271	2,567	169	2,350	174	2,689	34	2,226	-------	346
Netherlands Indies	0	1,881	0	2,161	0	2,107	0	2,047	0	[3] 1,729
Mexico	126	1,808	56	1,230	23	688	5	487	4	506
Brazil	0	1,472	0	1,246	1	575	0	363	0	359
Sweden	474	1,405	550	1,473	102	1,691	258	1,044	730	1,016
Tunis	21	1,347	28	1,764	24	1,943	14	2,070	58	2,730
British India	6	1,231	7	1,148	6	899	4	969	3	1,086
Norway	925	1,191	1,380	749	2,905	562	3,644	240	3,819	195
Union of South Africa	342	530	1,954	450	2,186	303	2,364	379	1,238	394
Total	49,901	685,902	56,762	709,025	56,194	668,231	47,832	2,437	47,116	602,612

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted. All cheese made from milk, including "cottage cheese".

TABLE 418.—*Oleomargarine: Production and apparent consumption in the United States, 1924–25 to 1933–34*

Year beginning July	Production			Stocks beginning of year	Exports	Stocks end of year	Apparent consumption	
	Colored	Uncolored	Total				Total	Per capita
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Pounds*
1924–25	11,280	204,123	215,403	2,607	887	2,720	214,403	1.87
1925–26	13,181	234,866	248,047	2,720	1,256	2,942	246,569	2.12
1926–27	14,502	242,655	257,157	2,942	942	3,299	255,858	2.17
1927–28	15,351	279,348	294,699	3,299	732	3,187	294,079	2.46
1928–29	16,306	316,816	333,122	3,187	633	4,191	331,485	2.74
1929–30	17,103	332,021	349,124	4,191	931	4,694	347,690	2.84
1930–31	8,847	268,926	277,773	4,694	604	2,494	279,369	2.26
1931–32	4,636	210,706	215,342	2,494	553	2,615	214,668	1.72
1932–33	2,813	216,230	219,043	2,615	316	2,786	218,556	1.75
1933–34	2,689	240,498	243,187	2,786	537	2,732	242,704	1.93

Bureau of Agricultural Economics. Production and stocks from reports of the Bureau of Internal Revenue. Exports from reports of the Bureau of Foreign and Domestic Commerce. See 1927 Yearbook, table 448, for data for earlier years.

TABLE 419.—*Oleomargarine: Materials used in manufacture, 1924–25 to 1933–34*

Material	Year beginning July									
	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Butter	1,509	2,330	2,070	2,484	2,611	2,616	1,013	39	16	10
Coconut oil	79,449	98,307	107,654	141,000	171,412	185,066	155,954	127,967	134,430	140,083
Coloring	38	41	18	19	47	21	11	5	3	3
Corn oil	196	174	183	38	-------	(1)	159	74	102	274
Cottonseed oil	20,966	25,608	23,372	24,801	28,173	30,214	22,037	14,874	16,031	24,338
Milk	61,924	72,662	73,700	83,115	94,752	97,753	77,251	54,257	52,007	57,794
Neutral lard	25,674	25,172	24,872	25,036	24,189	19,632	10,180	10,557	9,130	9,240
Oleo oil	44,102	47,418	48,741	45,477	47,185	45,322	28,040	15,315	12,457	17,984
Oleo stearine	5,250	5,314	5,145	5,532	5,834	6,269	5,485	4,337	3,283	3,301
Oleo stock	3,183	3,082	2,552	1,738	1,294	1,189	1,025	641	573	832
Peanut oil	4,392	5,257	4,872	5,459	6,617	5,714	5,291	3,780	2,338	2,641
Salt	18,725	20,593	21,683	25,024	27,311	28,890	22,981	14,659	12,598	14,187
Soybean oil	-------	1	33	-------	-------	619	2,262	13	7	-------
Miscellaneous	826	1,501	1,190	1,346	1,512	1,343	3,202	847	861	1,142
Total	266,234	307,460	316,085	361,069	410,937	424,648	334,891	247,365	243,836	271,829

[1] Not over 500 pounds.

Bureau of Agricultural Economics; compiled from annual reports of the Bureau of Internal Revenue.

TABLE 420.—*Oleomargarine, standard, uncolored: Average wholesale price [1] per pound, Chicago, by months, 1925–34*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	24.5	24.5	24.5	24.5	23.9	23.5	23.7	24.5	24.5	24.5	24.5	24.5	24.3
1926	24.5	24.3	23.5	23.3	22.5	22.5	22.5	22.5	22.5	22.5	21.8	21.5	22.8
1927	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	23.9	24.5	23.5	23.5	22.3
1928	23.5	23.5	23.5	21.5	21.5	21.5	21.5	21.5	22.0	23.5	23.5	23.5	22.5
1929	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
1930	23.5	23.5	23.5	23.5	23.5	22.8	20.5	20.5	20.5	20.5	20.5	19.0	21.8
1931	17.7	15.5	14.5	14.5	12.8	11.0	10.6	10.5	11.9	12.7	13.3	13.4	13.3
1932	12.8	9.8	9.5	9.5	9.5	9.5	9.1	9.3	9.5	9.5	9.5	9.5	9.7
1933	9.5	8.0	7.7	8.1	9.4	9.5	9.5	9.5	9.5	9.4	7.8	7.0	8.7
1934	7.0	7.0	8.0	7.3	7.0	7.8	8.0	8.0	9.0	9.8	10.0	10.4	8.3

[1] These prices are for consignment to the wholesale trade.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics Wholesale Price Bulletins. Data for earlier years in 1928 Yearbook, table 477.

TABLE 421.—*Chickens: Number on hand Jan. 1 and value, United States, 1925–35*

Year	Number	Value per head	Total value	Year	Number	Value per head	Total value
	Thousands	*Cents*	*1,000 dollars*		*Thousands*	*Cents*	*1,000 dollars*
1925 [1]	*409,291*	*92.6*	*379,011*	1930	469,955	92.8	436,272
1925	417,755	79.3	331,203	1931	460,489	70.4	324,405
1926	424,514	88.5	375,718	1932	451,219	61.7	278,211
1927	450,585	90.7	408,525	1933	461,930	45.1	208,284
1928	467,174	85.8	401,004	1934	455,182	42.2	191,954
1929	445,806	91.1	406,164	1935	411,581	54.3	223,651
1930 [1]	*378,878*	*84.9*	*321,625*				

[1] Census report.

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TABLE 422.—*Chickens: Estimated number on farms and value per head, by States, Jan. 1, 1932–35*

State and division	Number of chickens Jan. 1				Value per head			
	1932	1933	1934	1935	1932	1933	1934	1935
	Thous.	*Thous.*	*Thous.*	*Thous.*	*Cents*	*Cents*	*Cents*	*Cents*
Maine	1,780	1,900	1,931	1,713	110	88	85	90
New Hampshire	1,090	1,160	1,214	1,151	120	95	90	102
Vermont	827	868	865	771	105	88	77	88
Massachusetts	2,190	2,215	2,233	1,996	125	105	100	105
Rhode Island	360	374	374	328	125	105	102	107
Connecticut	1,960	2,015	2,092	1,971	105	90	86	98
New York	14,340	14,765	15,252	14,367	97	81	74	84
New Jersey	5,525	5,840	5,755	5,283	112	94	91	95
Pennsylvania	18,900	19,830	19,858	19,838	93	68	67	78
North Atlantic	46,962	48,967	49,574	47,418	100.2	79.7	75.9	85.1
Ohio	21,375	22,895	22,665	20,910	67	47	45	60
Indiana	17,200	17,830	17,564	16,052	64	45	40	55
Illinois	26,020	26,870	26,523	24,077	63	45	40	54
Michigan	12,295	12,835	12,903	11,129	71	50	45	62
Wisconsin	14,800	14,930	15,851	15,214	61	47	40	57
East North Central	91,690	95,360	95,506	87,382	64.9	46.5	41.9	57.2
Minnesota	19,170	19,160	18,727	16,660	51	35	30	46
Iowa	34,150	33,875	35,335	31,915	56	43	37	49
Missouri	27,170	28,320	27,146	23,271	54	36	31	43
North Dakota	4,830	5,005	4,844	3,752	47	32	28	01
South Dakota	9,125	9,490	8,707	6,312	51	34	28	44
Nebraska	15,810	15,980	16,806	13,108	47	34	30	34
Kansas	21,590	21,785	22,102	17,706	46	34	29	29
West North Central	131,845	133,615	133,667	112,724	51.5	36.8	31.7	44.2
North Central	223,535	228,975	229,173	200,106	57.0	40.8	35.9	49.9
Delaware	1,970	2,029	2,188	2,118	82	59	58	71
Maryland	5,225	5,345	5,135	5,419	78	57	58	71
Virginia	9,720	10,365	9,694	9,729	68	45	47	58
West Virginia	3,965	4,220	4,067	3,932	63	47	47	54
North Carolina	8,960	9,560	9,136	8,829	59	39	44	56
South Carolina	4,060	4,270	4,022	4,049	57	45	49	55
Georgia	7,935	7,795	7,657	7,287	52	40	41	50
Florida	2,785	2,745	2,504	2,549	70	58	57	65
South Atlantic	44,620	46,329	44,403	43,912	63.8	45.9	47.9	58.3
Kentucky	10,425	11,085	10,948	10,703	54	35	33	46
Tennessee	10,880	11,775	11,192	11,123	51	33	32	46
Alabama	7,545	7,840	7,466	7,169	44	35	37	43
Mississippi	7,420	7,625	6,609	6,717	47	35	37	43
Arkansas	8,170	8,820	7,938	6,903	43	30	28	37
Louisiana	5,075	4,944	5,007	4,798	57	38	40	48
Oklahoma	13,085	14,100	12,689	10,623	48	30	27	39
Texas	26,830	27,680	25,958	22,508	47	32	33	40
South Central	89,430	93,869	87,807	80,549	48.4	32.8	32.6	42.2
Montana	2,190	2,260	2,266	1,917	53	42	38	44
Idaho	2,650	2,450	2,491	2,170	52	40	39	46
Wyoming	870	840	851	739	53	44	39	48
Colorado	4,110	4,000	4,098	3,663	52	34	34	42
New Mexico	1,145	1,240	1,179	1,015	59	41	36	41
Arizona	760	810	790	688	71	63	57	71
Utah	2,795	2,390	2,669	2,319	53	46	44	47
Nevada	327	253	285	257	62	60	59	64
Washington	7,620	7,645	7,613	7,080	65	55	49	63
Oregon	3,565	3,292	3,262	3,161	72	53	53	63
California	20,640	18,610	18,721	16,587	80	64	58	70
Western	46,672	43,790	44,225	39,596	68.7	54.3	49.9	60.5
United States	451,219	461,930	455,182	411,581	61.7	45.1	42.2	54.3

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TABLE 423.—*Chickens: Number raised and value per head, by States, 1931–34*

State and division	Number raised				Value per head			
	1931	1932	1933	1934	1931	1932	1933	1934
	Thous.	*Thous.*	*Thous.*	*Thous.*	*Cents*	*Cents*	*Cents*	*Cents*
Maine	3,380	3,650	3,796	3,227	89	69	59	63
New Hampshire	2,640	2,640	3,010	2,709	87	68	55	62
Vermont	1,380	1,520	1,672	1,338	84	64	57	58
Massachusetts	5,120	5,530	5,862	4,983	87	66	57	64
Rhode Island	640	685	712	606	95	78	66	70
Connecticut	3,795	3,795	4,175	3,549	90	74	58	64
New York	18,555	21,336	22,616	19,224	72	59	50	54
New Jersey	7,480	7,855	7,855	7,305	96	76	68	74
Pennsylvania	23,640	24,800	24,800	24,056	78	62	50	58
North Atlantic	66,630	71,811	74,498	66,997	80.9	64.4	53.9	59.9
Ohio	29,710	32,085	33,370	28,698	62	44	37	48
Indiana	27,280	29,190	29,482	25,356	60	45	36	47
Illinois	35,140	37,250	37,622	34,612	64	46	37	48
Michigan	18,510	18,880	20,579	16,257	60	45	37	46
Wisconsin	20,016	19,610	22,747	20,246	56	38	34	39
East North Central	130,656	137,015	143,800	125,169	60.9	44.0	36.3	46.1
Minnesota	27,790	27,235	28,324	23,509	52	35	28	38
Iowa	45,830	44,455	50,234	44,206	62	43	34	45
Missouri	34,890	39,430	38,641	34,390	52	36	27	34
North Dakota	6,990	6,920	7,335	5,721	45	32	26	31
South Dakota	13,085	13,085	13,870	8,322	52	36	28	36
Nebraska	22,950	23,640	26,004	22,104	51	37	27	34
Kansas	31,645	33,225	35,883	29,783	48	34	24	30
West North Central	183,180	187,990	200,291	168,035	53.4	37.1	28.4	36.7
North Central	313,836	325,005	344,091	293,204	56.5	40.0	31.7	40.7
Delaware	2,950	3,245	3,570	3,213	67	49	43	53
Maryland	7,050	7,755	7,042	6,760	72	51	45	53
Virginia	16,550	19,030	16,746	17,583	56	37	35	42
West Virginia	4,905	6,130	5,333	5,440	61	40	37	45
North Carolina	13,650	15,015	14,114	13,408	47	35	32	38
South Carolina	7,360	7,730	6,725	6,927	51	37	34	39
Georgia	11,635	11,635	11,635	10,588	46	33	31	38
Florida	3,410	3,070	2,763	2,708	58	50	42	47
South Atlantic	67,510	73,610	67,928	66,627	54.5	38.8	35.5	42.3
Kentucky	14,530	16,855	16,181	16,181	49	34	28	35
Tennessee	14,224	15,930	15,133	14,679	47	33	27	34
Alabama	10,500	11,340	10,773	9,696	37	27	26	30
Mississippi	10,180	10,405	8,948	9,664	37	30	25	30
Arkansas	10,845	11,725	10,318	8,977	43	29	23	29
Louisiana	5,825	5,941	6,238	5,988	48	34	31	36
Oklahoma	20,497	22,135	19,921	17,331	45	30	23	29
Texas	34,460	35,840	32,256	29,030	41	29	25	29
South Central	121,061	130,171	119,768	111,546	43.2	30.4	25.6	31.1
Montana	3,610	3,680	3,496	2,972	48	40	32	34
Idaho	3,427	3,015	3,317	3,029	48	34	27	32
Wyoming	1,400	1,190	1,357	1,153	47	38	33	37
Colorado	5,245	5,040	5,393	5,339	47	35	28	33
New Mexico	1,450	1,670	1,586	1,348	50	40	32	32
Arizona	947	995	1,015	863	72	59	50	57
Utah	3,398	2,752	3,633	2,906	42	36	29	31
Nevada	448	336	420	336	65	47	45	46
Washington	10,083	11,090	10,868	10,107	50	35	31	35
Oregon	5,330	4,477	4,790	4,646	52	40	33	36
California	24,900	21,165	22,223	21,112	55	47	42	41
Western	60,238	55,410	58,098	53,811	51.7	41.0	35.3	37.2
United States	629,275	656,007	664,383	592,185	55.9	40.7	33.8	40.9

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TABLE 424.—*Chickens: Number raised and value, United States, 1924–34*

Year	Number	Value per head	Total value	Year	Number	Value per head	Total value
	Thousands	*Cents*	*1,000 dol.*		*Thousands*	*Cents*	*1,000 dol.*
1924 [1]	*545, 848*	*76. 8*	*419, 381*	1929	673, 070	77. 9	524, 383
1925	608, 268	72. 0	437, 665	1930	653, 101	63. 2	412, 904
1926	643, 649	76. 3	491, 370	1931	629, 275	55. 9	351, 584
1927	672, 123	71. 9	483, 430	1932	656, 007	40. 7	267, 252
1928	627, 357	76. 7	481, 362	1933	664, 383	33. 8	224, 459
1929 [1]	*673, 092*	*86. 3*	*581, 110*	1934	592, 185	40. 9	242, 422

[1] Census report.

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TABLE 425.—*Poultry, live: Freight receipts at New York, by State of origin, 1930–34*

State	1930	1931	1932	1933	1934	State	1930	1931	1932	1933	1934
	Cars	*Cars*	*Cars*	*Cars*	*Cars*		*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Alabama	129	166	151	99	36	New Jersey	1				
Arkansas	349	359	290	248	304	New Mexico	2				
Colorado	82	24	17	2	1	New York					
Delaware	1					North Carolina	107	63	50	35	9
Florida	4	3	4			North Dakota	55	76	48	22	6
Georgia	79	62	35	9		Ohio	305	335	461	462	336
Illinois	1, 174	978	851	1, 234	1, 128	Oklahoma	763	728	445	248	343
Indiana	1, 168	942	1, 051	1, 092	981	Pennsylvania	12	8	4	1	
Iowa	604	732	598	432	419	South Carolina	49	59	44	24	7
Kansas	509	447	430	254	236	South Dakota	214	300	271	157	147
Kentucky	511	593	596	732	580	Tennessee	642	857	690	805	618
Louisiana			12	3		Texas	332	233	183	125	74
Maryland	2	1			3	Utah					
Massachusetts						Virginia	91	96	66	34	23
Michigan			2	3		Wisconsin	188	192	68	10	2
Minnesota	123	187	58	29	28	Wyoming	4	1			1
Mississippi	76	75	60	46	33	Other States				1	
Missouri	2, 019	1, 650	1, 839	1, 611	1, 667						
Nebraska	1, 082	985	802	432	659	United States	10, 677	10, 152	9, 126	8, 150	7, 641

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TABLE 426.—*Poultry, dressed: Receipts, gross weight,*[1] *at 4 markets, by months, 1930–34, and total, 1925–34*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Boston:													
1930	4, 270	3, 992	2, 815	2, 544	3, 193	3, 514	3, 401	2, 952	3, 154	3, 875	8, 270	9, 309	51, 289
1931	4, 840	4, 565	3, 846	2, 976	2, 559	3, 216	3, 476	3, 635	3, 787	4, 434	9, 698	10, 750	57, 782
1932	4, 141	3, 927	4, 094	2, 730	2, 967	3, 255	2, 839	3, 487	3, 619	4, 265	10, 633	12, 256	58, 213
1933	5, 543	3, 803	3, 387	3, 369	3, 832	4, 128	3, 800	4, 004	3, 939	5, 081	12, 374	11, 468	64, 728
1934	4, 545	3, 054	2, 617	2, 393	3, 360	3, 385	3, 202	3, 330	3, 243	4, 249	9, 812	9, 482	52, 672
New York:													
1930	15, 054	11, 674	8, 476	10, 630	13, 877	14, 999	11, 807	12, 533	15, 383	19, 647	32, 584	34, 221	200, 885
1931	17, 969	13, 396	9, 920	10, 073	10, 553	13, 657	15, 242	18, 294	21, 147	18, 749	33, 029	36, 882	218, 911
1932	12, 534	9, 910	10, 292	8, 852	11, 454	13, 728	12, 708	14, 288	15, 362	19, 651	34, 609	32, 057	195, 445
1933	15, 747	11, 835	10, 963	12, 115	15, 013	15, 641	14, 144	16, 329	17, 417	21, 220	39, 622	33, 048	223, 094
1934	18, 168	10, 957	9, 705	8, 209	12, 633	15, 976	15, 069	14, 477	16, 118	19, 717	32, 954	30, 084	204, 067
Philadelphia:													
1930	3, 041	2, 501	2, 207	1, 991	2, 388	2, 117	1, 794	1, 772	2, 166	3, 046	5, 607	7, 906	36, 536
1931	2, 384	2, 179	2, 863	1, 754	1, 560	2, 509	2, 729	2, 875	2, 555	2, 524	6, 018	8, 243	38, 193
1932	1, 881	2, 467	1, 943	1, 960	2, 555	1, 934	1, 912	2, 191	2, 096	2, 614	6, 259	8, 635	36, 447
1933	3, 141	2, 717	1, 894	2, 027	2, 569	2, 344	2, 115	1, 900	1, 743	2, 306	6, 591	7, 719	37, 066
1934	2, 725	2, 131	1, 745	1, 377	2, 381	1, 859	2, 371	2, 136	1, 998	2, 405	5, 599	6, 245	32, 972
Chicago:													
1930	9, 835	5, 597	2, 899	2, 339	2, 163	2, 645	2, 303	2, 777	3, 809	6, 274	19, 409	20, 103	80, 153
1931	7, 770	4, 529	3, 563	2, 320	2, 309	2, 501	3, 130	3, 673	4, 642	4, 397	14, 203	18, 438	71, 475
1932	4, 855	3, 317	2, 396	1, 505	1, 428	1, 326	853	1, 616	3, 333	5, 232	19, 736	19, 752	65, 349
1933	4, 713	2, 442	1, 241	859	1, 294	1, 558	1, 668	1, 355	1, 474	2, 982	19, 731	16, 113	55, 430
1934	3, 900	1, 785	1, 452	787	863	1, 235	1, 436	1, 621	2, 882	4, 296	13, 827	10, 620	44, 704
Total:													
1925	27, 585	19, 383	15, 048	13, 323	16, 166	17, 487	17, 676	17, 466	18, 683	27, 259	61, 488	66, 794	318, 358
1926	26, 122	18, 576	17, 344	13, 809	16, 371	21, 099	20, 724	22, 932	24, 278	30, 738	68, 594	75, 228	355, 815
1927	26, 652	18, 119	15, 362	13, 772	19, 853	21, 015	17, 789	22, 376	23. 935	28, 710	60, 422	68, 974	336, 979
1928	28, 602	20, 012	17, 560	15, 815	17, 608	18, 571	21, 853	21, 910	23, 564	35, 163	59, 788	68, 537	348, 983
1929	29, 067	19, 451	16, 666	16, 571	17, 319	20, 178	21, 885	25, 638	27, 879	37, 262	71, 901	75, 705	379, 522
1930	32, 200	23, 764	16, 397	17, 504	21, 621	23, 275	19, 305	20, 034	24, 512	32, 842	65, 870	71, 539	368, 863
1931	32, 963	24, 669	20, 192	17, 123	16, 981	21, 883	24, 577	28, 477	32, 131	30, 104	62, 948	74, 313	386, 361
1932	23, 411	19, 621	18, 725	15, 047	18, 404	20, 243	18, 312	21, 582	24, 410	31, 762	71, 237	72, 700	355, 454
1933	29, 144	20, 797	17, 485	18, 370	22, 708	23, 671	21, 727	23, 588	24, 573	31, 589	78, 318	68, 348	380, 318
1934	29, 338	17, 927	15, 519	12, 766	19, 237	22, 455	22, 078	21, 564	24, 241	30, 667	62, 192	56, 431	334, 415

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 427.—*Poultry, dressed: Receipts, gross weight,[1] at 4 markets, by State of origin, 1930–34*

Market and origin	1930	1931	1932	1933	1934
BOSTON	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Ill.	10,497	9,284	8,909	8,698	8,625
Ind.	3,677	3,296	3,270	4,301	2,948
Iowa	7,495	8,917	9,109	10,144	8,785
Kans.	2,155	3,774	3,495	4,346	3,485
Ky.	365	227	312	614	196
Maine	479	319	313	207	101
Mass.	37	5	5	2	29
Mich.	515	424	466	503	410
Minn.	9,024	9,502	5,835	10,351	9,331
Mo.	2,328	2,100	3,126	2,646	2,094
Nebr.	3,950	3,763	3,233	2,789	2,751
N. H.	25	13	18	12	6
N. Y.	1,008	942	429	621	349
N. Dak.	1,521	2,678	5,575	4,526	3,446
Ohio	84	254	258	228	272
Okla.	1,215	1,369	1,474	2,013	1,636
Pa.	21	200	126	152	36
S. Dak.	377	1,541	2,723	4,065	2,572
Tenn.	173	323	590	774	853
Tex.	5,476	7,099	6,937	6,119	3,629
Vt.	31	31	25	54	60
Wis.	94	322	31	71	96
Other States	742	1,250	1,756	1,492	962
Canada	-------	149	198	-------	-------
Total	51,289	57,782	58,213	64,728	52,672
NEW YORK					
Ark.	532	337	703	898	698
Calif.	1,476	1,668	1,707	416	2,235
Colo.	1,225	891	1,741	1,005	1,628
Del.	29	110	-------	-------	-------
Idaho	1,122	1,612	1,442	738	934
Ill.	28,182	27,594	20,970	22,460	14,194
Ind.	13,637	9,671	8,368	7,305	6,480
Iowa	30,295	36,614	26,995	38,090	40,370
Kans.	18,887	16,926	19,746	21,936	21,424
Ky.	2,329	2,672	2,237	2,484	2,073
Md.	283	241	179	199	104
Mass.	390	113	114	136	97
Mich.	1,435	2,374	1,649	370	509
Minn.	21,322	24,080	24,450	26,806	27,632
Mo.	16,301	13,974	10,399	16,385	13,101
Mont.	399	450	545	739	653
Nebr.	8,861	9,512	10,031	14,189	13,533
N. J.	178	297	256	217	82
N. Y.	14,415	23,858	19,582	20,110	17,910
N. Dak.	2,099	2,783	4,194	5,786	4,971
Ohio	2,519	3,154	2,184	3,406	2,958
Okla.	6,410	8,503	8,972	9,765	9,517
Oreg.	338	747	1,005	241	812
Pa.	537	801	946	855	302
S. Dak.	5,007	6,625	5,667	8,057	5,142
Tenn.	2,390	3,890	3,625	2,718	2,334
Tex.	15,301	15,612	14,059	14,018	10,108
Utah	559	472	575	583	861
Va.	1,586	722	660	730	418
Wash.	383	353	493	338	732
Wis.	1,304	1,103	833	901	1,156
Wyo.	449	510	489	679	646
Other States	705	600	583	534	453
Canada	-------	42	46	-------	-------
Total	200,885	218,911	195,445	223,094	204,067

Market and origin	1930	1931	1932	1933	1934
CHICAGO	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Ark.	216	381	38	18	106
Calif.	78	138	18	2	3
Colo.	546	433	631	333	384
Idaho	446	84	34	10	1
Ill.	3,521	3,376	2,734	3,671	3,383
Ind.	801	217	235	291	280
Iowa	18,152	13,694	11,689	9,702	8,985
Kans.	4,111	4,580	2,847	1,813	1,783
Ky.	143	477	153	195	182
Mich.	111	79	84	66	110
Minn.	9,891	10,852	9,512	7,017	5,134
Mo.	5,985	4,603	4,293	2,732	3,355
Mont.	1,898	1,135	1,339	1,377	891
Nebr.	3,875	4,273	2,789	1,970	2,201
N. J.	-------	194	74	-------	27
N. Mex.	226	164	250	47	29
N. Y.	455	266	70	77	69
N. Dak.	7,616	6,826	10,850	12,064	7,164
Ohio	185	59	31	31	69
Okla.	1,880	2,607	1,616	1,675	845
S. Dak.	9,010	9,282	8,312	6,024	4,046
Tenn.	381	393	155	66	544
Tex.	6,268	4,459	4,967	4,478	3,267
Wis.	3,135	2,310	1,789	1,486	1,560
Wyo.	444	264	313	235	166
Other States	779	329	526	50	120
Total	80,153	71,475	65,349	55,430	44,704
PHILADELPHIA					
Colo.	16	283	495	465	184
Idaho	592	200	237	319	283
Ill.	2,897	3,627	3,071	3,850	3,059
Ind.	1,562	1,401	879	622	843
Iowa	6,577	6,333	6,544	6,641	5,820
Kans.	2,248	2,496	2,242	2,207	2,255
Ky.	756	218	791	794	701
Md.	82	84	40	42	14
Mich.	117	266	47	28	28
Minn.	7,595	8,707	6,995	5,137	5,094
Mo.	1,222	1,570	2,401	2,207	2,551
Nebr.	1,288	2,416	2,321	2,369	2,449
N. J.	812	197	-------	10	-------
N. Y.	442	310	46	171	332
N. Dak.	882	793	1,273	1,260	953
Ohio	390	92	83	325	209
Okla.	2,418	2,508	2,092	1,549	1,164
Pa.	69	14	63	6	5
S. Dak.	922	574	679	788	459
Tex.	3,029	4,815	4,955	5,479	4,426
Va.	853	421	462	380	362
W. Va.	302	143	116	146	118
Wis.	191	125	64	234	131
Other States	1,274	600	551	2,037	1,532
Total	36,536	38,193	36,447	37,066	32,972

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 428.—*Poultry: Receipts at New York, Chicago, Philadelphia, and Boston, 1920–34*

DRESSED POULTRY [1]

Year	New York	Chicago	Philadelphia	Boston	Year	New York	Chicago	Philadelphia	Boston
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*		*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1920	101,093	57,324	21,606	34,086	1928	194,376	67,180	31,844	55,583
1921	124,551	64,992	22,892	39,921	1929	197,057	93,368	34,664	54,433
1922	138,212	73,661	21,319	44,563	1930	200,885	80,153	36,536	51,289
1923	163,948	90,273	24,611	56,013	1931	218,911	71,475	38,193	57,782
1924	179,362	88,464	27,640	61,264	1932	195,445	65,349	36,447	58,213
1925	170,257	72,086	29,295	46,720	1933	223,094	55,430	37,066	64,728
1926	192,895	77,632	32,126	53,162	1934	204,067	44,704	32,972	52,672
1927	188,117	63,735	31,822	53,305					

LIVE POULTRY

Year	New York [2]			Year	New York [2]			Chicago		
	Freight	Express	Truck		Freight	Express	Truck	Freight	Express	Truck
	Cars	*Cars* [3]	*Cars* [3]		*Cars*	*Cars* [3]	*Cars* [3]	*Cars*	*Cars* [3]	*Cars* [3]
1920	8,454	------	------	1927	12,104	830	------	------	------	------
1921	10,730	------	------	1928	11,267	833	------	------	------	------
1922	[4] 11,672	------	------	1929	10,493	599	------	1,314	2,293	2,103
1923	12,072	443	------	1930	10,677	423	1,386	1,141	2,113	2,122
1924	11,677	586	------	1931	10,152	253	1,498	837	1,277	2,902
1925	10,498	747	------	1932	9,126	142	2,048	318	570	3,461
1926	11,497	668	------	1933	8,150	101	2,317	155	358	3,772
				1934	7,641	99	2,428	305	360	3,658

[1] Gross weights, which include container and wrapping.
[2] From 1919–26, inclusive, compiled from reports of Urner-Barry Co.
[3] Car-lot equivalents calculated from express and truck receipts.
[4] Includes express.

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the various markets.

TABLE 429.—*Poultry, fresh dressed: Average wholesale price per pound, New York City, by months, 1933 and 1934*

Month	1933						1934					
	Fowl	Broilers	Fryers	Roasters	Cocks	Weighted average [1]	Fowl	Broilers	Fryers	Roasters	Cocks	Weighted average [1]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
January	16.00	17.00	14.90	15.90	10.00	15.85	14.98	17.40	14.90	17.90	9.30	15.83
February	15.40	19.20	16.00	16.50	11.00	15.61	15.18	------	15.00	18.00	10.00	15.30
March	15.10	------	------	12.16	11.00	14.64	16.58	------	------	18.00	10.00	15.62
April	16.20	------	------	------	11.00	16.01	18.00	------	------	------	10.33	14.71
May	16.12	23.25	------	------	11.00	16.69	17.50	24.50	------	------	10.37	16.16
June	14.56	20.00	21.10	------	10.70	15.68	16.13	25.62	27.73	------	9.50	17.74
July	14.60	18.90	19.80	22.00	10.00	15.76	15.48	21.04	24.68	26.43	10.12	17.66
August	14.00	18.00	17.60	24.00	10.00	16.23	16.71	21.13	23.81	26.00	10.69	19.45
September	14.86	18.35	16.10	22.50	10.00	17.22	18.20	22.80	20.30	25.90	12.60	20.87
October	13.98	18.30	14.60	17.40	10.00	15.37	17.04	22.10	19.00	21.25	13.00	18.97
November	13.40	16.70	14.40	16.60	9.50	14.73	17.18	21.00	18.26	21.80	13.00	19.06
December	13.80	16.70	14.20	17.00	9.00	14.93	17.01	20.55	18.00	22.36	12.80	18.99
Weighted average [1]	14.72	18.87	16.01	17.48	10.16	15.61	16.66	22.35	20.49	21.74	11.12	18.36

[1] Weighted on basis of market receipts by classes.

Bureau of Agricultural Economics. Compiled from American Creamery and Poultry Produce Review.

TABLE 430.—*Poultry, frozen: Cold-storage holdings,[1] by months, United States, 1925–34*

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1925	133,990	138,189	130,513	108,608	82,732	68,126	58,562	53,558	47,946	44,345	53,787	86,733
1926	111,501	108,512	95,397	73,124	52,783	42,808	36,730	35,793	38,634	44,771	64,842	106,854
1927	144,497	145,076	129,510	104,697	77,282	61,525	50,064	42,293	39,711	43,201	52,315	85,030
1928	117,490	118,154	103,494	83,169	56,832	43,872	38,230	40,395	40,749	43,578	58,093	79,173
1929	109,684	102,380	89,088	68,728	52,901	41,643	42,001	40,896	49,010	61,976	86,873	115,876
1930	140,723	141,552	133,172	105,708	77,420	61,167	54,253	46,967	42,589	46,938	59,269	82,925
1931	104,913	101,307	95,188	69,986	45,920	35,348	32,762	36,438	43,056	56,215	65,668	89,971
1932	116,700	111,554	96,422	74,660	56,676	44,829	36,661	31,471	30,305	36,683	54,989	91,118
1933	111,642	104,833	88,675	67,285	45,824	38,131	42,705	44,970	47,789	50,177	59,528	91,211
1934	123,503	120,177	101,776	74,197	49,212	39,790	40,609	44,904	46,053	55,262	73,401	105,565

[1] Quantities given are net weight.

Bureau of Agricultural Economics. Compiled from reports made by cold-storage establishments. Data for earlier years in 1928 Yearbook, table 482.

TABLE 431.—*Chickens, live: Average price per pound received by producers, United States, 1925–34*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	18.5	19.1	20.0	21.1	22.0	21.6	21.4	20.8	20.4	20.0	19.2	19.5	19.9
1926	20.9	21.5	21.9	23.1	23.7	23.9	23.6	22.1	21.4	20.8	20.0	19.8	21.2
1927	20.1	21.1	21.3	21.8	21.7	20.2	19.9	19.7	19.4	19.7	19.4	19.2	20.0
1928	19.6	20.1	20.1	20.8	21.5	21.5	21.9	21.6	22.3	22.0	21.5	21.2	21.4
1929	21.6	22.1	22.7	23.8	24.4	24.6	23.7	22.7	22.4	21.5	20.3	19.1	21.7
1930	19.8	20.4	20.6	21.1	20.0	19.0	17.4	17.3	17.8	17.4	16.1	15.3	17.8
1931	15.7	15.1	16.1	16.7	15.9	16.1	15.8	16.2	15.7	14.4	14.4	13.9	15.0
1932	13.3	12.6	12.6	12.6	12.2	11.4	11.7	11.7	11.6	10.7	10.1	9.2	11.1
1933	9.3	9.4	9.1	9.8	10.4	10.0	10.4	9.8	9.5	9.3	8.8	8.6	9.1
1934	9.4	10.2	10.7	11.1	11.2	11.2	11.7	11.4	12.7	11.8	11.7	11.7	11.2

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by census production in 1919 to obtain the United States averages from 1925 through May 1932, and by 1929 census sales thereafter. Yearly price obtained by weighing annual State averages by sales in each State. Data for earlier years in 1928 Yearbook, table 483.

TABLE 432.—*Turkeys, live: Average price per pound received by producers, United States, 1924–25 to 1934–35*

Season	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Season	Oct. 15	Nov. 15	Dec. 15	Jan. 15
	Cents	*Cents*	*Cents*	*Cents*		*Cents*	*Cents*	*Cents*	*Cents*
1924–25	23.3	24.2	25.8	26.2	1930–31	21.0	20.1	19.9	21.6
1925–26	24.0	28.3	31.1	31.7	1931–32	17.9	18.3	19.4	18.0
1926–27	26.6	29.8	32.8	31.6	1932–33	13.2	12.9	10.9	10.2
1927–28	26.4	30.8	32.3	29.8	1933–34	11.3	11.8	11.1	11.6
1928–29	27.2	31.2	30.5	28.2	1934–35	12.7	14.6	16.0	16.0
1929–30	27.2	27.1	23.5	23.7					

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by census production in 1919 to obtain the United States averages from 1925 to October 1932, and by 1929 census sales thereafter.

TABLE 433.—*Eggs: Production and value in the United States, 1925–34*

Year	Production	Value per dozen	Total value	Year	Production	Value per dozen	Total value
	Millions	*Cents*	*1,000 dol.*		*Millions*	*Cents*	*1,000 dol.*
1924[1]	*22,959*	*29.9*	*571,938*	1930	33,529	23.5	656,792
1925	27,910	30.2	701,405	1931	34,442	17.3	496,397
1926	30,148	28.7	721,697	1932	32,308	13.9	373,805
1927	31,761	24.9	658,348	1933	31,828	13.6	359,686
1928	32,523	27.8	754,428	1934	31,006	16.8	433,510
1929[1]	*32,276*	*29.5*	*793,803*				

[1] Census report.

Bureau of Agricultural Economics.

TABLE 434.—*Eggs: Production and value per dozen, by States, 1931–34*

State and division	Production				Value per dozen			
	1931	1932	1933	1934	1931	1932	1933	1934
	Millions	*Millions*	*Millions*	*Millions*	*Cents*	*Cents*	*Cents*	*Cents*
Maine	181	185	198	191	29.4	24.6	21.9	25.8
New Hampshire	112	113	126	126	31.1	26.1	23.9	28.1
Vermont	83	82	86	83	26.8	22.4	20.7	24.6
Massachusetts	244	244	246	253	36.2	30.5	28.2	31.4
Rhode Island	33	33	36	37	32.3	27.7	25.8	29.8
Connecticut	179	192	203	210	32.3	27.0	25.8	29.0
New York	1,244	1,225	1,270	1,301	25.1	20.9	19.8	22.9
New Jersey	438	443	467	475	29.0	23.9	23.4	26.4
Pennsylvania	1,550	1,504	1,514	1,571	22.8	18.2	17.6	20.8
North Atlantic	4,064	4,021	4,146	4,247	26.2	21.6	20.5	23.8
Ohio	1,721	1,646	1,592	1,579	18.2	14.1	13.8	16.8
Indiana	1,291	1,219	1,173	1,150	16.2	12.5	12.1	15.4
Illinois	1,703	1,606	1,597	1,573	16.1	12.5	11.9	15.5
Michigan	1,012	1,057	1,036	1,016	18.3	14.6	13.4	16.9
Wisconsin	1,268	1,163	1,166	1,272	16.5	13.8	13.1	16.2
East North Central	6,995	6,691	6,564	6,590	17.0	13.4	12.9	16.2
Minnesota	1,452	1,316	1,332	1,281	14.6	11.7	11.5	14.4
Iowa	2,562	2,320	2,356	2,333	14.8	11.8	11.1	14.3
Missouri	2,286	2,076	2,024	1,814	14.2	11.0	10.3	13.6
North Dakota	330	275	284	255	12.6	10.1	9.8	12.8
South Dakota	706	556	582	467	13.0	10.7	10.0	13.0
Nebraska	1,181	1,027	1,051	1,002	12.8	10.3	10.0	12.8
Kansas	1,757	1,533	1,533	1,390	13.3	10.2	9.9	13.0
West North Central	10,274	9,103	9,162	8,542	13.9	11.0	10.6	13.7
North Central	17,269	15,794	15,726	15,132	15.2	12.1	11.5	14.8
Delaware	148	140	137	134	23.1	18.2	17.2	20.2
Maryland	339	356	356	356	21.4	16.4	16.3	19.6
Virginia	683	713	721	702	19.2	14.6	14.8	18.0
West Virginia	343	336	324	311	19.9	14.7	15.0	18.0
North Carolina	429	425	435	442	19.7	15.0	15.3	19.2
South Carolina	194	177	178	174	21.5	16.2	16.2	19.6
Georgia	379	378	361	344	19.4	15.4	15.3	18.9
Florida	180	179	171	158	23.8	19.0	19.0	23.0
South Atlantic	2,695	2,704	2,683	2,621	20.5	15.7	15.7	19.1
Kentucky	609	601	595	592	15.9	11.9	11.5	15.1
Tennessee	653	651	632	614	15.7	11.6	11.5	15.2
Alabama	438	425	415	408	16.7	12.9	13.0	16.8
Mississippi	353	358	328	308	16.3	12.2	12.4	15.5
Arkansas	446	483	469	429	14.4	10.9	10.6	14.0
Louisiana	260	246	243	237	17.7	13.2	13.3	16.2
Oklahoma	920	878	851	778	13.0	9.7	10.3	13.6
Texas	1,900	1,803	1,723	1,569	13.8	10.2	10.8	14.6
South Central	5,579	5,445	5,256	4,935	14.6	10.9	11.2	14.8
Montana	176	150	155	149	15.7	14.7	13.6	15.2
Idaho	225	210	193	188	14.4	12.8	14.0	15.0
Wyoming	75	68	65	62	18.4	15.7	14.9	17.0
Colorado	333	289	271	268	16.2	12.8	12.5	14.8
New Mexico	83	79	82	75	18.1	14.3	14.3	17.2
Arizona	64	58	58	60	25.3	20.0	19.8	23.6
Utah	319	274	253	273	16.7	14.3	14.5	16.2
Nevada	30	27	23	26	19.9	17.9	18.4	20.0
Washington	923	858	817	837	18.8	15.7	16.4	18.4
Oregon	331	334	299	314	17.2	15.0	15.5	17.6
California	2,276	1,997	1,801	1,819	19.9	17.2	17.2	19.0
Western	4,835	4,344	4,017	4,071	18.8	16.1	16.3	18.0
United States	34,442	32,308	31,828	31,006	17.3	13.9	13.6	16.8

Bureau of Agricultural Economics.

TABLE 435.—*Eggs: Receipts at 6 markets by State of origin, 1930–34*

Market and origin	1930	1931	1932	1933	1934
BOSTON	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Illinois	161	191	138	88	116
Indiana	117	101	87	100	66
Iowa	272	323	282	283	304
Kansas	171	211	204	172	135
Maine	64	45	35	43	39
Massachusetts	10	9	6	11	11
Michigan	35	47	37	35	38
Minnesota	229	229	157	136	159
Missouri	64	80	82	80	101
Nebraska	139	117	107	96	84
New Hampshire	28	24	23	35	29
New York	27	25	15	7	4
Ohio	44	55	70	54	36
Vermont	17	15	15	19	15
Other States	195	164	181	171	156
Total	1,573	1,636	1,439	1,330	1,293
CHICAGO					
California	33	73	24	7	11
Illinois	150	127	219	368	296
Iowa	977	959	708	881	936
Kansas	232	295	319	375	226
Michigan	22	13	58	68	52
Minnesota	772	778	401	375	472
Missouri	542	555	678	932	676
Nebraska	399	340	159	213	185
North Dakota	40	51	------	39	21
Oklahoma	35	34	97	48	39
South Dakota	508	459	279	310	202
Texas	13	21	17	5	------
Wisconsin	490	382	254	339	458
Other States	262	227	199	175	123
Total	4,475	4,314	3,412	4,135	3,697
NEW YORK					
California	698	589	501	340	226
Delaware	39	28	35	49	46
Idaho	70	204	156	77	91
Illinois	829	704	631	540	574
Indiana	454	387	329	319	244
Iowa	1,388	1,354	1,070	1,151	1,083
Kansas	275	255	278	300	206
Kentucky	31	24	40	38	14
Maryland	70	36	41	54	65
Michigan	70	80	62	55	62
Minnesota	279	353	469	535	588
Missouri	276	328	286	373	237
Nebraska	166	273	216	178	178
New Jersey	228	232	201	214	177
New York	625	468	354	619	772
Ohio	209	226	294	304	210

Market and origin	1930	1931	1932	1933	1934
NEW YORK—con.	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Oregon	53	94	126	85	68
Pennsylvania	214	166	179	231	246
Tennessee	87	36	33	50	5
Utah	396	554	378	285	310
Virginia	79	39	58	76	59
Washington	760	859	683	629	653
Wisconsin	49	57	34	66	92
Other States	250	255	248	317	230
Total	7,595	7,601	6,702	6,885	6,436
PHILADELPHIA					
California	112	97	72	41	44
Delaware	44	24	10	15	15
Illinois	124	187	118	120	113
Indiana	44	35	25	31	28
Iowa	125	154	139	182	164
Kansas	78	101	121	105	59
Maryland	55	33	19	34	25
Michigan	47	69	27	36	30
Minnesota	237	227	223	222	185
Missouri	157	207	255	210	134
Nebraska	39	37	37	46	30
New York	22	20	31	29	32
Ohio	47	27	23	40	61
Pennsylvania	287	177	119	160	208
Tennessee	25	9	20	15	8
Virginia	86	37	39	50	55
Washington	72	76	56	47	54
West Virginia	4	3	5	3	5
Wisconsin	65	67	45	31	30
Other States	89	143	112	113	126
Total	1,759	1,730	1,496	1,530	1,406
SAN FRANCISCO					
California	749	730	700	710	742
Idaho	2	2	2	7	9
Oregon	8	20	12	17	10
Washington	(1)	3	7	2	4
Other States	6	3	4	12	18
Total	765	758	725	748	783
LOS ANGELES					
California	761	730	539	542	598
Idaho	22	6	9	12	20
Oregon	5	14	13	20	20
Utah	52	3	15	42	33
Other States	4	14	16	39	36
Total	844	767	592	655	707

[1] Not over 500 cases.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets. Reported in cases of 30 dozen.

TABLE 436.—*Eggs: Receipts at 5 markets, 1919–34*

Year	New York	Chicago	Philadelphia	Boston	San Francisco
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
1919	6,008	4,617	1,704	1,659	698
1920	4,991	4,154	1,396	1,648	757
1921	6,579	4,155	1,642	1,823	811
1922	6,821	4,684	1,703	1,970	838
1923	7,156	5,009	1,727	1,944	855
1924	6,543	4,679	1,595	1,829	760
1925	6,894	4,498	1,572	1,833	743
1926	6,818	4,575	1,566	1,808	744
1927	7,048	4,901	1,549	1,960	750
1928	7,288	4,601	1,735	1,757	756
1929	7,129	4,398	1,697	1,718	766
1930	7,595	4,475	1,759	1,573	765
1931	7,601	4,314	1,730	1,636	758
1932	6,702	3,412	1,496	1,439	725
1933	6,885	4,135	1,530	1,330	748
1934	6,436	3,697	1,406	1,293	783

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the various markets. Reported in cases of 30 dozen.

TABLE 437.—*Eggs: Receipts at 5 markets, by months, 1931–34*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Boston:													
1931	126	153	198	207	219	188	125	108	95	77	62	78	1,636
1932	98	138	181	164	201	155	117	109	79	71	64	62	1,439
1933	92	98	145	207	175	141	132	91	58	68	58	65	1,330
1934	88	118	164	170	156	142	98	101	68	71	66	51	1,293
New York:													
1931	478	530	940	1,116	1,052	868	568	516	484	398	304	347	7,601
1932	475	554	663	827	873	689	534	533	438	417	345	354	6,702
1933	593	491	769	934	1,021	710	588	493	369	352	269	296	6,885
1934	412	605	777	752	815	662	527	420	374	373	337	382	6,436
Philadelphia:													
1931	133	148	189	205	184	186	141	132	124	92	97	99	1,730
1932	114	105	136	193	171	153	114	110	125	101	90	84	1,496
1933	120	118	161	183	181	137	113	105	120	97	88	107	1,530
1934	111	113	161	170	149	142	109	104	74	91	91	91	1,406
Chicago:													
1931	231	367	634	867	709	559	290	238	191	96	61	71	4,314
1932	178	224	378	657	663	437	258	219	161	104	60	73	3,412
1933	189	229	491	881	1,049	524	260	206	133	76	37	60	4,135
1934	125	267	647	889	736	445	217	146	100	53	29	43	3,697
San Francisco:													
1931	58	66	85	83	72	61	56	59	49	59	54	56	758
1932	72	68	77	75	63	62	57	64	51	46	45	45	725
1933	57	52	73	76	76	63	59	58	53	58	61	62	748
1934	72	62	75	70	71	61	58	57	49	67	66	75	783

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the various markets. Reported in cases of 30 dozen. See 1927 Yearbook, table 458, and 1932 Yearbook, table 431, for data for earlier years.

TABLE 438.—*Eggs, shell and frozen: Cold-storage holdings, United States, 1925–34*

Kind and year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Shell eggs: [1]												
1925	1,050	81	21	1,240	4,872	7,712	9,482	10,024	9,873	8,612	6,322	3,786
1926	1,683	578	77	872	3,735	7,236	9,133	9,845	9,573	8,048	5,888	3,215
1927	1,096	253	92	1,868	5,501	8,962	10,565	10,746	9,650	7,960	5,485	2,956
1928	882	26	66	1,087	4,515	8,168	10,002	10,496	9,944	8,542	6,247	3,542
1929	1,415	248	11	559	3,952	6,705	8,510	8,962	8,547	7,195	4,930	2,631
1930	704	139	84	2,231	5,766	9,178	10,743	11,198	10,375	9,174	6,785	4,154
1931	1,894	735	408	1,893	5,162	7,887	9,507	9,504	9,016	7,960	5,745	3,447
1932	1,475	663	258	700	2,982	5,380	6,339	6,431	5,960	4,895	3,225	1,199
1933	159	75	163	1,833	4,857	8,062	9,364	9,507	8,944	7,466	5,175	2,641
1934	731	50	90	1,208	4,640	7,819	8,965	8,961	7,938	6,803	4,633	2,380
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Frozen eggs: [2]												
1925	21,303	16,292	11,364	11,353	19,579	29,544	38,379	42,855	47,099	44,299	45,314	39,336
1926	33,905	29,256	24,167	21,849	25,739	34,815	45,688	51,810	52,634	51,062	44,966	38,620
1927	33,593	31,207	26,053	33,272	52,053	71,605	81,263	81,418	77,508	71,208	62,066	54,703
1928	47,020	38,575	31,362	34,411	51,532	67,941	77,744	81,670	89,196	82,255	73,327	64,201
1929	56,181	48,055	38,250	34,918	51,825	71,560	84,766	91,488	86,693	81,541	70,331	61,772
1930	53,644	44,080	35,192	49,751	76,664	106,904	115,134	116,272	113,138	106,631	98,359	89,571
1931	83,184	75,685	73,889	78,051	91,517	106,607	113,513	114,700	110,271	103,302	94,816	86,407
1932	79,198	72,439	68,024	69,031	81,920	94,978	100,485	99,112	92,967	84,187	74,314	64,150
1933	55,339	46,448	40,450	45,090	62,944	85,323	103,019	107,660	102,449	93,182	82,302	72,348
1934	61,419	49,910	39,181	38,679	62,632	93,947	116,058	121,564	111,994	99,951	88,715	76,073

[1] 30-dozen cases.

[2] Quantities given are net weight. 35 pounds of frozen eggs are approximately equivalent to 1 case of 30 dozen shell eggs.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments. Data for earlier years in 1928 Yearbook, tables 488 and 489.

TABLE 439.—*Eggs: Average price per dozen received by producers, United States, 1925–34*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	48.6	35.7	23.9	24.2	24.8	26.1	27.9	30.0	31.1	37.7	46.8	48.1	30.4
1926	36.3	28.9	24.1	24.8	25.2	25.7	25.7	26.4	31.5	36.8	44.9	47.6	28.8
1927	36.9	29.0	20.8	20.3	19.8	17.8	20.7	23.4	29.4	35.6	41.6	43.3	25.0
1928	38.2	29.1	23.4	22.8	24.2	23.9	25.6	27.4	31.4	34.9	39.6	42.9	28.0
1929	33.0	31.9	28.0	23.0	24.4	26.1	27.2	29.8	33.9	38.4	44.2	45.8	29.9
1930	38.4	31.8	21.3	21.5	20.0	18.6	18.8	20.6	25.3	26.5	31.7	26.8	23.7
1931	22.1	14.1	17.0	16.2	13.3	14.1	14.8	17.3	19.1	22.7	26.4	25.6	17.5
1932	17.2	12.8	10.4	10.2	10.3	10.6	12.0	14.7	17.2	22.5	26.1	28.1	14.2
1933	21.4	11.0	10.1	10.3	11.8	10.1	13.1	13.3	16.3	20.8	24.0	21.6	13.8
1934	17.6	15.8	14.4	13.5	13.3	13.2	14.1	17.2	21.9	23.7	28.6	27.0	17.0

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by Census production 1919 to obtain the United States averages from 1925 through May 1932, and by 1929 census sales thereafter. Yearly prices obtained by weighting annual State averages by sales in each State. Data for earlier years in 1928 Yearbook, table 492.

TABLE 440.—*Eggs: Average wholesale price per dozen at 5 markets, by months, specified years*

Market, grade, and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
New York:													
Fresh firsts:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1925	59	44	30	29	32	33	33	33	37	43	56	51	40
1926	38	31	29	32	31	30	29	31	38	40	50	48	36
1927	42	32	25	26	23	23	25	28	34	40	44	45	32
1928	45	32	29	28	30	29	30	31	33	32	37	37	33
1929	36	41	33	28	31	31	32	34	36	40	48	51	37
1930	42	35	26	27	23	24	22	25	25	26	31	29	28
1931	24	20	22	20	19	19	20	22	24	24	28	27	22
1932	19	18	14	14	15	14	15	17	21	24	31	31	19
1933	23	14	14	13	14	13	15	14	18	20	26	22	17
1934	22	18	18	17	16	16	17	21	22	24	28	27	20
Chicago:													
Fresh firsts:													
1930	40	34	24	24	21	22	21	25	26	28	33	28	27
1931	21	16	19	17	17	16	18	19	20	24	29	24	20
1932	18	14	12	12	12	12	13	16	19	23	30	29	18
1933	21	12	12	12	13	12	14	13	16	19	23	19	16
1934	20	17	16	16	15	15	15	19	21	23	27	27	19
Boston:													
Western firsts:													
1930	44	37	26	26	24	24	22	25	25	26	34	28	39
1931	25	18	21	20	18	17	19	20	21	25	30	27	22
1932	19	17	14	14	15	14	15	18	21	24	30	32	20
1933	24	14	14	14	14	14	15	15	18	21	24	20	17
1934	23	21	18	17	17	17	17	21	23	24	28	27	21
Philadelphia:													
Extra firsts:													
1930	46	40	28	28	26	27	28	32	33	36	44	32	33
1931	28	20	22	21	19	21	24	24	26	29	34	31	25
1932	23	18	15	15	16	16	17	22	23	28	35	34	22
1933	27	15	15	15	16	15	19	18	22	26	32	28	21
1934	25	22	19	19	19	20	20	24	28	27	33	33	24
San Francisco:													
Fresh extras:													
1930	36	28	28	28	27	26	26	31	37	40	41	27	31
1931	22	19	20	20	20	20	22	26	31	38	33	29	25
1932	20	17	17	16	16	17	18	20	27	30	33	28	22
1933	24	15	16	16	17	18	19	21	26	29	29	24	21
1934	19	17	16	16	16	18	21	26	28	34	32	27	22

Bureau of Agricultural Economics. Compiled from the Bureau of Labor Statistics wholesale-price bulletins, monthly, except prices for San Francisco, which are from the Pacific Dairy Review.

TABLE 441.—*Eggs and egg products: International trade, average 1925–29, annual 1930–33*

EGGS IN THE SHELL

	Average 1925–1929		Calendar year							
			1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*
Netherlands	98,429	8,965	124,859	1,324	126,689	425	117,667	401	83,740	347
Union of Soviet Socialist Republics	86,978	0	14,471	163	30,038	100	10,554	185	2,895	121
Poland	76,215	493	80,999	50	70,687	2	54,971	1	34,547	40
Denmark	67,641	225	71,852	52	81,193	0	92,059	0	89,195	0
China	56,278	0	51,360	0	50,944	0	[2]29,657	[2]207	29,555	126
Irish Free State	47,058	449	47,355	106	46,097	103	38,831	80	34,694	----
Belgium	41,430	1,419	42,926	1,703	47,778	713	51,860	601	27,569	1,998
Italy	25,943	17,969	13,701	33,543	13,205	36,213	5,692	51,425	1,464	12,908
France	24,536	11,499	23,512	16,422	7,854	35,174	1,199	4,759	547	23,129
United States	22,521	350	18,579	317	7,684	309	2,319	244	1,866	251
Hungary	18,026	338	19,367	205	17,609	72	9,402	16	16,925	51
Bulgaria	17,258	0	28,239	0	32,876	0	27,637	0	23,031	0
Rumania	15,011	1	24,725	2	19,008	3	23,232	1	----	----
Morocco	14,985	0	14,629	0	13,828	0	13,773	0	14,566	0
Egypt	10,879	6	8,202	0	10,445	0	16,986	0	14,231	0
Algeria	5,830	17	4,233	19	1,898	46	1,233	[3]107	1,346	----
Lithuania	5,313	0	4,599	0	5,083	0	3,816	0	2,400	0
Sweden	4,422	679	6,543	628	4,289	1,971	6,477	293	4,372	328
Union of South Africa	3,477	113	6,158	47	6,143	90	5,458	28	4,711	5
Estonia	1,428	4	2,065	1	2,197	0	2,066	0	2,007	0
Norway	570	111	1,056	114	1,153	134	2,504	76	2,581	88
Finland	58	37	636	12	2,771	1	9,211	1	14,662	----
Total	644,286	42,675	610,066	54,708	599,469	75,356	526,604	68,425	406,904	39,392
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	973	238,350	715	264,306	227	258,729	158	199,332	----	183,739
Germany	591	220,035	159	219,909	204	193,915	87	197,037	39	120,958
Spain	15	34,479	12	39,154	15	33,370	14	34,218	14	55,706
Austria	1,730	22,033	1,942	25,869	1,452	25,617	208	16,797	246	13,181
Japan	0	20,465	0	8,167	0	12,142	0	161	0	44
Switzerland	13	17,132	9	20,221	24	23,003	21	24,752	3	22,016
Argentina	1,518	9,791	969	14,846	2,606	8,318	2,480	1,004	2,690	376
Cuba	0	8,793	0	1,314	0	55	0	5	0	----
Philippine Islands	0	5,935	0	6,958	0	10,990	0	9,899	0	----
Czechoslovakia	1,828	4,917	2,622	7,936	1,223	12,136	326	11,894	4	6,932
Mexico	0	4,202	0	4,349	0	87	0	24	3	17
British Malaya	366	3,638	270	4,341	218	3,366	166	1,588	201	1,896
Canada	1,365	2,244	189	2,908	634	68	273	40	1,988	25
Chile	17	67	19	337	11	164	227	0	365	0
Total	8,416	592,081	6,906	620,615	6,614	581,960	3,960	496,751	5,553	404,890

[1] Preliminary.
[2] Does not include Manchuria after June 30, 1932.
[3] International Yearbook of Agricultural Statistics.

TABLE 441.—*Eggs and egg products: International trade, average 1925–29, annual 1930–33*—Continued

EGGS NOT IN THE SHELL

	Average 1925–1929		Calendar year							
			1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
China	128,990	0	153,304	0	132,606	0	[2] 119,361	0	105,981	0
Yugoslavia	57,955	[4] 1	67,084	7	57,997	2	36,356	11	40,310	0
Turkey	23,486	0	39,403	0	54,101	0	54,570	0	----	0
Total	210,431	1	259,791	7	244,704	2	210,287	11	146,291	0
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	598	65,731	157	85,630	111	83,286	64	85,326	0	70,590
United States	464	24,914	196	16,156	255	7,661	44	3,085	49	3,664
Germany	2,098	18,252	2,065	27,231	1,908	21,031	1,365	23,840	1,374	10,818
France	238	7,375	255	13,080	188	16,608	134	6,177	48	6,898
Netherlands	860	4,355	1,009	5,588	865	4,962	793	4,094	431	4,221
Canada	0	1,700	0	1,758	0	120	0	117	0	37
Italy	16	1,317	12	1,854	9	2,690	4	2,058	5	2,370
Belgium	216	1,137	486	1,642	1,665	2,730	1,537	2,373	1,184	2,030
Irish Free State	19	1,031	19	1,126	23	1,202	30	1,140	----	200
Sweden	5	859	19	1,073	0	1,126	0	848	0	714
Czechoslovakia	13	850	7	1,579	3	1,957	3	1,609	0	860
Austria	8	680	1	1,290	0	950	0	939	0	621
Denmark	7	512	7	570	15	636	3	524	55	469
Union of South Africa	16	54	31	7	3	10	1	8	0	8
Norway	0	11	0	22	0	20	2	21	0	13
Total	4,558	128,778	4,264	158,606	5,045	144,989	3,980	132,159	3,146	103,513

[1] Preliminary.
[2] Does not include Manchuria after June 30, 1932.
[4] 2-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.
In countries reporting other than dozens of eggs, the conversion factor used is 1½ pounds equals 1 dozen.

STATISTICS OF FOREIGN TRADE IN AGRICULTURAL PRODUCTS

TABLE 442.—*Summary of exports and imports, United States, 1909–10 to 1933–34*

Year beginning July	Total exports	Agricultural exports [1]			Total imports	Agricultural imports [1]		Excess of agricultural exports	Forest products			
		Domestic		Reexports					Exports		Imports	Excess of imports
		Value	Percentage of total			Value	Percentage of total		Domestic	Reexports		
	1,000 dollars	*1,000 dollars*	*Percent*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*Percent*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1909–10	1, 710, 084	871, 158	50. 9	22, 162	1, 556, 947	794, 370	51. 0	98, 950	85, 030	2, 110	75, 010	[2] 12, 130
1910–11	2, 013, 549	1, 030, 794	51. 2	20, 573	1, 527, 226	773, 116	50. 6	278, 251	103, 039	1, 679	71, 736	[2] 32, 982
1911–12	2, 170, 320	1, 050, 627	48. 4	17, 171	1, 653, 265	888, 495	53. 7	179, 303	108, 122	1, 350	69, 581	[2] 39, 891
1912–13	2, 428, 506	1, 123, 652	46. 3	19, 652	1, 813, 008	916, 634	50. 6	226, 670	124, 836	2, 809	82, 878	[2] 44, 767
1913–14	2, 329, 684	1, 113, 974	47. 8	20, 286	1, 893, 926	1, 000, 409	52. 8	133, 851	106, 979	1, 961	81, 162	[2] 27, 778
1914–15	2, 716, 178	1, 475. 938	54. 3	38, 222	1. 674, 170	997, 911	59. 6	516, 249	52, 554	1, 287	79, 451	25, 610
1915–16	4, 272, 178	1, 518, 071	35. 5	45, 017	2, 197, 884	1, 349, 563	61. 4	213, 525	68, 155	1, 435	94, 265	24, 675
1916–17	6, 227, 164	1, 968, 253	31. 6	45, 420	2, 659, 355	1, 599, 660	60. 2	414, 013	68, 919	3, 392	129, 580	57, 269
1917–18	5, 838, 652	2, 280, 466	39. 1	44, 210	2, 945, 655	1, 826, 436	62. 0	498, 240	87, 181	1, 409	128, 490	39, 900
1918–19	7, 081, 462	3, 579, 918	50. 6	105, 587	3. 095, 720	1, 930, 028	62. 3	1, 755, 477	113, 275	3, 758	132, 588	15, 555
1919–20	7, 949, 309	3, 861, 511	48. 6	128, 191	5, 238, 352	3, 410, 018	65. 1	579, 684	190, 049	5, 380	229, 091	33, 662
1920–21	6, 385. 884	2, 607, 641	40. 8	90, 739	3, 654, 459	2, 060, 237	56. 4	638, 143	141, 876	4, 043	225, 162	79, 243
1921–22	3, 699. 909	1, 915, 866	51. 8	43, 589	2. 608, 079	1, 371, 720	52. 6	587, 735	94, 115	2, 315	156, 843	60, 413
1922–23	3, 886, 682	1, 799. 168	46. 3	48, 393	3. 780, 959	2, 077, 240	54. 9	[3] 229, 679	129, 981	1, 955	234, 598	102, 662
1923–24	4, 223, 973	1, 867, 098	44. 2	62, 719	3, 554, 037	1, 875, 365	52. 8	54, 452	162, 374	1, 563	216, 712	52, 775
1924–25	4, 778, 155	2, 280, 381	47. 7	64, 168	3. 824, 128	2, 057, 163	53. 8	287, 386	156, 187	1, 290	227, 423	69, 946
1925–26	4, 653, 148	1, 891, 739	40. 7	75, 162	4, 464, 872	2, 529, 775	56. 7	[3] 562, 874	162, 731	1, 450	238, 545	74, 364
1926–27	4, 867, 346	1, 907, 864	39. 2	72, 222	4, 252, 024	2, 281, 421	53. 7	[3] 301, 335	171, 970	1, 365	238, 247	64, 912
1927–28	4, 773, 332	1. 815, 451	38. 0	73, 391	4. 147, 499	2, 193, 868	52. 9	[3] 305, 026	174, 599	1, 528	215, 874	39, 747
1928–29	5, 283, 938	1, 847, 216	35. 0	63, 942	4. 291, 888	2, 179, 046	50. 8	[3] 267, 888	178, 092	2, 157	222, 249	42, 000
1929–30	4, 617, 730	1, 495, 907	32. 4	50, 670	3, 848, 971	1, 890, 508	49. 1	[3] 343, 931	161, 743	1, 382	209, 418	46, 293
1930–31	3, 031, 557	1, 038, 034	34. 2	28, 791	2. 432. 074	1, 163, 054	47. 8	[3] 96, 229	97, 695	858	142, 590	44, 037
1931–32	1, 908. 087	752, 145	39. 4	22, 692	1, 730. 270	834, 238	48. 2	[3] 59, 401	62, 270	409	104, 543	41, 864
1932–33	1, 413, 397	589, 653	41. 7	14, 763	1, 167, 876	611, 688	52. 4	[3] 7, 272	46, 634	297	65, 543	18, 612
1933–34 [4]	2, 008, 447	787, 259	39. 2	21, 227	[5] 1,673,415	[5] 861, 762	51. 5	[3] 53, 276	72, 915	401	109, 149	35, 833

[1] Does not include forest products, but includes rubber now mostly a plantation product.
[2] Excess of exports.
[3] Excess of agricultural imports.
[4] Preliminary.
[5] Imports for consumption, 1933–34.

Bureau of Agricultural Economics.

This table supersedes table 500 in the Yearbook of Agriculture, 1931; the value of total imports and exports has been given and the imports of rubber, unmanufactured, and similar gums have been deducted from the imports of forest products and added to imports of agricultural products, also reexports of rubber, unmanufactured, and similar gums have been deducted from reexports of forest products and added to reexports of agricultural products. Rubber, unmanufactured, and similar gums, includes: Balata, guayule, gutta-joolatong or jelutong or pontianak, gutta-percha, India rubber, crude, and India rubber scrap or refuse, fit only for remanufacture.

In the statistics of foreign commerce of the United States the Philippine Islands are treated as a foreign country. The statistics of foreign commerce include the trade of the customs districts of Alaska, Hawaii, and Puerto Rico with foreign countries, but do not include the trade of these Territories with the United States.

TABLE 443.—*Agricultural products: Value of trade between continental United States and noncontiguous Territories, 1924–25 to 1933–34*

Year beginning July	Puerto Rico		Hawaii		Alaska	
	United States shipments to	Shipments to United States	United States shipments to	Shipments to United States	United States shipments to	Shipments to United States
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1924–25	29,710	70,190	17,954	97,430	9,774	415
1925–26	32,212	70,385	17,806	105,470	9,539	516
1926–27	32,603	84,061	18,019	98,600	8,737	720
1927–28	28,146	82,326	19,004	110,338	9,435	231
1928–29	31,466	53,333	19,348	103,653	9,108	290
1929–30	28,117	75,868	19,883	98,097	9,257	511
1930–31	25,062	75,390	17,759	103,119	6,982	380
1931–32	18,796	67,769	15,795	92,460	5,443	147
1932–33	17,469	58,992	12,517	79,993	4,920	65
1933–34 [1]	20,393	66,092	16,643	87,069	6,185	131

[1] Preliminary.

Bureau of Agricultural Economics; compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1924–34.

TABLE 444.—*Agricultural products: Value of principal groups exported from and imported into the United States, 1931–32 to 1933–34*

Article	Year beginning July					
	Domestic exports			General imports		
	1931–32	1932–33	1933–34 [1]	1931–32	1932–33	1933–34 [1 2]
ANIMALS AND ANIMAL PRODUCTS	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Animals, live	1,090	970	1,370	4,275	2,299	2,312
Dairy products	8,721	4,291	4,365	14,293	12,582	11,435
Eggs and egg products	827	404	443	1,158	815	371
Hides and skins, raw (except fur)	2,230	1,900	2,477	37,412	22,984	54,159
Meat and meat products	66,811	53,376	64,335	5,775	3,937	4,321
Silk, unmanufactured				158,479	96,483	102,217
Wool and mohair, unmanufactured	34	35	29	12,706	4,521	24,139
Animal products, miscellaneous	5,837	5,580	10,753	15,211	9,698	20,054
Total	85,550	66,556	83,772	249,309	153,319	219,008
VEGETABLE PRODUCTS						
Chocolate and cocoa	322	229	285	20,412	18,381	20,222
Coffee	1,607	1,309	2,410	149,110	128,548	127,452
Cotton lint, unmanufactured	337,595	321,960	438,018	6,435	5,869	9,272
Linters	1,694	2,327	4,259			
Total cotton, unmanufactured	339,289	324,287	442,277	6,435	5,869	9,272
Fruits	91,684	65,933	78,133	37,825	30,492	31,196
Grains and grain products	106,406	40,026	40,223	12,219	7,439	21,169
Nuts	1,028	736	2,667	13,491	7,876	9,893
Oilseeds and oilseed products	17,780	12,762	14,774	66,924	45,873	73,722
Rubber and similar gums				51,925	26,349	87,809
Seeds, except oilseeds	1,839	1,184	2,109	3,772	2,688	3,828
Spices	133	106	152	8,903	7,061	10,325
Sugar, molasses, and sirups	2,328	1,403	2,416	115,576	106,783	123,717
Tea				15,767	10,670	16,469
Tobacco, unmanufactured	86,281	62,823	99,878	32,544	21,004	24,858
Vegetables and preparations	8,725	6,282	7,920	18,848	12,561	16,616
Vegetable products, miscellaneous	9,173	6,017		31,178	26,775	66,206
Total vegetable products	666,595	523,097	703,487	584,929	458,369	642,754
Total animal and vegetable products	752,145	589,653	787,259	834,238	611,688	861,762
FOREST PRODUCTS						
Dyeing and tanning materials	1,536	1,382	1,979	4,685	2,544	6,993
Gums, resins, and balsams	13,415	11,949	15,781	10,770	5,339	9,186
Wood	42,247	29,500	47,710	31,699	15,484	24,510
Forest products, miscellaneous	5,072	3,803	7,445	57,388	42,176	68,460
Total	62,270	46,634	72,915	104,542	65,543	109,149
Total agricultural products	814,415	634,287	860,174	938,780	677,231	970,911

[1] Preliminary. [2] Imports for consumption.

Bureau of Agricultural Economics; compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1933 and 1934.

In the statistics of foreign commerce of the United States, the Philippine Islands are treated as a foreign country. The statistics of foreign commerce include the trade of the customs districts of Alaska, Hawaii, and Puerto Rico with foreign countries, but do not include the trade of these Territories with the United States.

TABLE 445.—*Index numbers of quantities of principal agricultural exports, United States 1909–10 to 1933–34*

[1909–10 to 1913–14=100]

Year beginning July	44 commodities	44 commodities except cotton	Cotton fiber	Grains and grain products	Cattle and meat products	Dairy products	Fruits	Tobacco
1909–10	78	86	73	82	91	58	76	91
1910–11	92	92	91	85	104	93	89	90
1911–12	114	100	125	78	115	126	101	97
1912–13	110	119	103	143	97	120	136	107
1913–14	106	103	108	112	92	103	98	114
1914–15	138	189	99	301	126	302	119	89
1915–16	118	184	70	237	164	479	109	113
1916–17	118	182	70	217	164	716	101	105
1917–18	101	165	53	179	197	975	63	74
1918–19	145	255	63	272	287	1,287	111	160
1919–20	134	207	80	218	185	1,275	122	165
1920–21	127	212	64	329	154	524	108	129
1921–22	137	218	76	317	153	571	105	118
1922–23	112	182	59	246	169	406	121	116
1923–24	104	153	67	143	179	451	214	152
1924–25	126	167	95	225	140	396	184	110
1925–26	106	123	93	117	114	327	211	137
1926–27	136	143	131	188	98	288	301	132
1927–28	112	138	92	188	98	263	258	125
1928–29	117	141	99	174	102	243	372	144
1929–30	97	117	82	130	104	221	216	153
1930–31	90	101	81	104	74	190	337	150
1931–32	98	91	103	104	63	123	305	110
1932–33	85	64	100	42	63	74	255	102
1933–34	83	65	97	34	65	72	248	120

Bureau of Agricultural Economics. Computations are based on the gross exports of 44 of the most important farm products. The index numbers were calculated as follows: Quantities of various commodities exported each year were multiplied by the average yearly export prices of these commodities from July 1909 to June 1914. The sum of the values determined in this way was then divided by the average yearly value of exports from 1909–10 to 1913–14 to obtain the index.

TABLE 446.—*Exports and imports of selected forest products, 1909–10 to 1933–34*

Year beginning July	Domestic exports					Imports				
	Lumber		Rosin	Spirits or turpentine	Timber, sawed	Camphor, crude	Lumber		Shellac	Wood pulp
	Boards, deals, and planks	Staves					Boards, deals, planks, and other sawed	Shingles		
	1,000 M feet	*Thousands*	*1,000 barrels*	*1,000 gallons*	*1,000 M feet*	*1,000 pounds*	*1,000 M feet*	*1,000 M*	*1,000 pounds*	*1,000 long tons*
1909–10	1,684	49,784	2,144	15,588	491	3,007	1,054	763	29,402	378
1910–11	2,032	65,726	2,190	14,818	532	3,726	872	643	15,495	492
1911–12	2,307	64,163	2,474	19,599	438	2,155	905	515	18,746	478
1912–13	2,550	89,006	2,806	21,094	512	3,709	1,091	560	21,912	502
1913–14	2,405	77,151	2,418	18,901	441	3,477	929	895	16,720	508
1914–15	1,129	39,297	1,372	9,464	174	3,729	939	1,487	24,153	588
1915–16	1,177	57,538	1,571	9,310	201	4,574	1,218	1,769	25,818	507
1916–17	1,042	61,469	1,639	8,842	184	6,885	1,175	1,924	32,540	699
1917–18	1,068	63,207	1,071	5,095	106	3,638	1,283	1,878	22,913	504
1918–19	1,073	62,753	882	8,065	92	2,623	977	1,757	14,269	475
1919–20	1,518	80,791	1,322	7,461	234	4,026	1,492	2,152	34,151	727
1920–21	1,269	65,710	877	9,742	123	2,093	920	1,831	23,872	624
1921–22	1,543	35,162	786	10,786	268	1,592	1,124	2,190	30,768	902
1922–23	1,549	57,466	1,040	9,012	383	3,498	1,958	2,695	32,773	1,293
1923–24	1,867	60,868	1,205	11,194	815	1,955	1,786	2,417	28,512	1,188
1924–25	1,929	79,922	1,412	12,308	586	1,904	1,732	2,551	21,436	1,529
1925–26	1,985	75,534	1,073	10,254	652	2,616	1,869	2,482	26,188	1,469
1926–27	2,013	74,826	1,229	13,820	707	2,175	1,841	2,275	28,707	1,509
1927–28	2,318	78,466	1,300	14,332	825	2,704	1,529	2,034	23,012	1,521
1928–29	2,387	82,409	1,309	14,175	711	5,064	1,441	2,052	31,548	1,643
1929–30	2,100	78,624	1,366	15,722	657	1,777	1,461	1,387	26,444	1,722
1930–31	1,466	47,207	1,099	13,282	406	1,246	915	1,058	14,145	1,456
1931–32	1,012	34,982	1,156	13,520	319	2,387	627	1,081	13,006	1,459
1932–33	842	27,852	1,125	11,281	320	1,540	206	1,378	8,102	1,237
1933–34[1]	963	33,035	1,137	12,720	266	2,528	361	1,422	12,147	1,864

[1] Preliminary.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1909–18, and Monthly Summary of Foreign Commerce of the United States, June issues, 1919–34.

TABLE 447.—*Exports of selected domestic agricultural products, annual 1909–10 to 1933–34*

Year beginning July	Butter	Cheese	Milk, condensed and evaporated	Eggs in the shell	Pork and its products, total [1]	Pork, fresh	Pork, pickled	Bacon, including Cumberland sides	Hams and shoulders, including Wiltshire sides	Lard, pure
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 dozen*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	3,141	2,847	13,311	5,326	707,110	1,040	40,032	152,163	146,885	362,928
1910–11	4,878	10,367	12,180	8,559	879,455	1,355	45,729	156,675	57,709	476,108
1911–12	6,092	6,338	20,643	15,406	1,071,952	2,598	56,321	208,574	204,044	532,256
1912–13	3,586	2,599	16,526	20,409	984,697	2,458	53,749	200,994	159,545	519,025
1913–14	3,694	2,428	16,209	16,149	921,913	2,668	45,543	193,964	165,882	481,458
1914–15	9,851	55,363	37,236	20,784	1,106,180	3,908	45,656	346,718	203,701	475,532
1915–16	13,487	44,394	159,578	26,396	1,462,697	63,006	63,461	579,809	282,209	427,011
1916–17	26,835	66,050	259,141	24,926	1,501,948	50,436	46,993	667,152	266,657	444,770
1917–18	17,736	44,303	528,759	18,969	1,692,124	21,390	33,222	815,294	419,572	392,506
1918–19	33,740	18,792	728,741	28,385	2,704,694	19,644	31,504	1,238,247	667,240	724,771
1919–20	27,156	19,378	708,463	38,327	1,762,611	27,225	41,643	803,667	275,456	587,225
1920–21	7,829	10,826	262,668	26,960	1,522,162	57,075	33,286	489,298	172,012	746,157
1921–22	7,512	7,471	277,311	33,762	1,516,320	25,911	33,510	350,549	271,642	812,379
1922–23	9,410	8,446	157,038	34,284	1,794,880	43,772	40,934	408,334	319,269	952,642
1923–24	5,425	3,938	213,613	32,832	1,934,189	49,113	37,469	423,500	381,564	1,014,898
1924–25	8,384	9,432	173,547	25,107	1,400,149	27,603	26,726	236,263	292,214	792,735
1925–26	5,280	4,094	135,865	27,931	1,172,685	15,867	29,126	186,153	220,014	695,445
1926–27	5,048	3,773	108,942	27,962	1,012,668	10,881	27,962	127,576	143,649	675,812
1927–28	3,965	2,873	108,943	22,832	1,046,306	11,059	31,650	126,977	127,819	716,398
1928–29	3,778	2,572	112,492	15,982	1,112,394	10,641	39,906	129,248	125,396	780,914
1929–30	3,582	2,339	101,572	14,234	1,138,588	18,768	39,809	132,967	130,318	787,160
1930–31	2,293	1,733	78,986	14,386	791,354	11,093	21,118	52,412	99,749	585,670
1931–32	1,578	1,564	65,623	3,519	679,748	9,270	15,229	[2] 25,576	[3] 69,334	542,639
1932–33	1,386	1,346	40,013	1,805	686,462	8,182	14,275	17,699	71,213	560,299
1933–34 [4]	1,416	1,253	38,088	2,008	705,982	28,299	19,070	23,841	71,488	546,997

Year beginning July	Beef and its products, total [5]	Oleo oil	Cotton lint [6]	Linters [6]	Cottonseed cake and meal	Linseed cake and meal	Prunes	Raisins	Apples, fresh	Apples, dried	Apricots, dried
	1,000 pounds	*1,000 pounds*	*1,000 bales*	*1,000 bales*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 barrels*	*1,000 pounds*	*1,000 pounds*
1909–10	286,296	126,092	6,413	------	640,089	652,317	89,015	8,526	922	----------	-------
1910–11	265,924	138,697	8,068	------	804,597	559,675	51,031	18,660	1,721	----------	-------
1911–12	233,925	126,467	11,070	------	1,293,690	596,115	74,328	19,949	1,456	----------	-------
1912–13	170,208	92,850	9,125	------	1,128,092	838,120	117,951	28,121	2,150	41,575	35,017
1913–14	151,212	97,017	9,522	------	799,974	662,869	69,814	14,766	1,507	33,566	17,402
1914–15	394,991	80,482	8,581	226	1,479,065	524,794	43,479	24,845	2,352	42,589	23,764
1915–16	457,556	102,646	5,917	251	1,057,222	640,916	57,423	75,015	1,466	16,219	23,940
1916–17	423,674	67,110	5,702	474	1,150,160	536,984	59,645	51,993	1,740	10,358	9,841
1917–18	600,132	56,603	4,455	186	44,681	151,400	32,927	54,988	635	2,603	5,230
1918–19	591,302	59,292	5,442	84	311,624	202,788	59,072	84,150	1,576	18,909	20,975
1919–20	368,002	74,529	7,035	52	449,573	336,336	114,066	86,857	1,051	11,819	26,768
1920–21	203,815	106,415	5,570	53	454,701	391,264	57,461	24,492	2,665	18,053	8,332
1921–22	222,462	117,174	6,592	126	532,721	484,059	109,398	49,639	1,094	12,431	16,736
1922–23	194,912	104,956	5,205	48	454,350	574,612	79,229	93,962	1,756	12,817	11,193
1923–24	185,081	92,965	5,784	115	250,366	560,114	136,448	88,152	4,098	30,323	38,777
1924–25	190,366	105,145	8,239	200	885,375	691,126	171,771	90,783	3,201	19,225	13,292
1925–26	152,320	90,410	8,110	102	716,505	589,166	151,405	135,027	3,672	24,833	18,132
1926–27	151,531	92,720	11,281	278	990,516	625,121	175,544	152,337	7,098	32,670	17,901
1927–28	106,595	64,851	7,890	230	664,523	606,304	260,625	193,099	3,144	21,704	23,684
1928–29	101,303	63,187	8,520	219	571,200	645,120	273,051	221,756	7,014	50,024	24,652
1929–30	102,080	61,088	7,096	143	338,240	624,960	142,989	128,697	3,426	23,769	19,101
1930–31	98,379	54,960	7,048	132	87,360	304,640	296,254	125,100	6,780	38,120	23,647
1931–32	79,482	43,762	8,989	145	430,080	443,520	243,935	122,213	6,010	31,557	37,622
1932–33	74,000	39,632	8,647	218	302,400	241,920	182,354	112,507	4,585	36,601	34,268
1933–34 [4]	78,711	27,429	8,366	216	147,840	546,560	202,832	93,954	4,086	37,339	36,616

[1] Includes canned, fresh, salted, or pickled pork, lard, neutral lard, lard oil, bacon, and hams, Wiltshire and Cumberland sides.
[2] Includes "Wiltshire sides," beginning January 1932.
[3] Wiltshire sides included with "Bacon."
[4] Preliminary.
[5] Includes canned, cured, and fresh beef, oleo oil, oleo stock, oleomargarine, tallow, and stearin from animal fats.
[6] Bales of 500 pounds gross; lint cotton and linters not separately reported prior to 1915.

TABLE 447.—*Exports of selected domestic agricultural products, annual 1909–10 to 1933–34*—Continued

Year beginning July	Oranges [7]	Apricots, canned [8]	Pears, canned [8]	Peaches, canned [8]	Pineapples, canned [8]	Grapes	Pears, fresh [8]	Grapefruit, fresh	Starch, including cornstarch	Cornstarch [9]
	1,000 boxes	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 boxes*	*1,000 pounds*	*1,000 pounds*
1909–10	932								51,536	
1910–11	1,179								158,239	
1911–12	1,197								83,645	
1912–13	1,063								110,898	
1913–14	1,559								76,714	
1914–15	1,759								107,037	
1915–16	1,575								210,185	
1916–17	1,850								146,424	
1917–18	1,240								73,883	38,659
1918–19	1,402								143,788	105,727
1919–20	1,619								237,609	163,315
1920–21	2,001								135,365	110,514
1921–22	1,641					[10] 173		[10]140	386,873	348,940
1922–23	1,799	[10] 13,809	49,358	54,624	21,848	14,022	36,785	252	260,796	254,060
1923–24	2,592	26,576	38,431	50,374	25,238	20,257	50,237	305	262,842	255,135
1924–25	2,197	31,360	53,851	57,390	26,252	20,302	41,452	427	214,247	209,865
1925–26	2,253	29,547	75,876	83,160	37,543	24,268	71,205	379	224,569	208,463
1926–27	3,340	35,896	66,104	81,896	37,426	30,791	73,877	613	233,111	212,375
1927–28	2,988	29,013	52,671	86,634	51,227	38,819	51,056	719	281,388	275,921
1928–29	4,223	26,249	82,652	101,438	47,533	55,638	82,847	940	235,660	231,667
1929–30	3,674	33,235	54,709	74,470	46,309	46,158	62,024	854	203,343	200,558
1930–31	3,984	19,024	74,355	75,763	35,308	49,799	134,670	1,222	104,807	102,886
1931–32	3,534	23,161	71,570	66,300	20,920	27,613	90,702	1,202	73,071	71,927
1932–33	3,391	19,504	60,762	74,999	15,923	29,352	119,987	902	52,969	52,350
1933–34 [4]	3,449	24,315	78,384	81,464	21,831	26,689	111,008	946	73,922	73,377

Year beginning July	Barley, including flour and malt [11]	Corn, including corn meal	Oats, including oatmeal	Rice, including flour, meal, and broken rice	Rye, including flour	Wheat, including flour	Tobacco, unmanufactured [12]	Glucose and grape sugar	Hops	Sugar, raw and refined [13]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 sh. tons*
1909–10	4,454	38,128	2,549	7,050	242	89,173	357,196	149,820	10,589	63
1910–11	9,507	65,615	3,846	15,575	40	71,338	355,327	181,963	13,105	28
1911–12	1,655	41,797	2,678	26,798	31	81,891	379,845	171,156	12,191	40
1912–13	17,874	50,780	36,455	24,801	1,855	145,159	418,797	200,149	17,591	22
1913–14	6,945	10,726	2,749	18,223	2,273	147,955	449,750	199,531	24,263	26
1914–15	28,712	50,668	100,609	75,449	13,027	335,702	348,346	158,463	16,210	275
1915–16	30,821	39,897	98,960	120,695	15,250	246,221	443,293	186,406	22,410	815
1916–17	20,319	66,753	95,106	181,372	13,703	205,962	411,599	214,973	4,825	625
1917–18	28,717	49,073	125,091	196,363	17,186	132,579	289,171	97,858	3,495	288
1918–19	26,997	23,019	109,005	193,128	36,467	287,402	629,288	136,230	7,467	558
1919–20	34,555	16,729	43,436	483,385	41,531	222,030	648,038	245,264	30,780	722
1920–21	27,255	70,906	9,391	440,855	47,337	369,313	506,526	141,954	22,206	292
1921–22	27,543	179,490	21,237	541,509	29,944	282,566	463,389	273,982	19,522	1,001
1922–23	21,909	96,596	25,413	370,670	51,663	224,900	454,364	162,693	13,497	375
1923–24	13,913	23,135	8,796	227,757	19,902	159,880	597,630	148,051	20,461	135
1924–25	28,543	9,791	16,777	112,037	50,242	260,803	430,702	139,577	16,122	251
1925–26	30,449	24,783	39,687	48,175	12,647	108,035	537,240	170,142	14,998	300
1926–27	19,655	19,819	15,041	304,358	21,697	219,160	516,401	148,789	13,369	114
1927–28	39,274	19,409	9,823	309,788	26,346	206,259	489,996	145,951	11,812	106
1928–29	60,295	41,874	16,251	392,684	9,488	163,687	565,925	123,366	8,836	128
1929–30	24,054	10,281	7,966	289,532	2,600	153,245	600,181	101,816	6,793	79
1930–31	11,443	3,317	3,123	281,005	227	131,475	591,035	70,571	5,593	70
1931–32	5,469	3,969	4,438	274,716	909	135,797	432,361	51,855	3,817	54
1932–33	9,399	8,775	5,361	177,715	311	41,211	399,967	41,829	2,431	41
1933–34 [4]	6,111	4,965	1,405	100,819	21	37,001	472,630	51,662	7,588	60

[4] Preliminary.
[7] Converted to boxes of 78 pounds.
[8] Given in value only prior to 1922–23.
[9] Included with "Starch" prior to 1917–18.
[10] Jan. 1 to June 30.
[11] Includes barley flour 1919–22. Barley flour not separately reported prior to 1919 nor since 1922.
[12] Includes "Stems, trimmings, and scrap tobacco."
[13] Includes maple sugar, 1919–34.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1909–18, and Monthly Summary of Foreign Commerce of the United States, June issues 1919–34.

Conversion factors used: Corn meal, 1 barrel=4 bushels corn; oatmeal, 18 pounds=1 bushel oats; rye flour, 1 barrel=6 bushels rye; malt, 1.1 bushels=1 bushel barley; wheat flour, 1 barrel=1909–17, 4.7 bushels grain; 1918 and 1919, 4.5 bushels; 1920, 4.6 bushels; 1921–34, 4.7 bushels; apples, 3 boxes=1 barrel. The unit "1,000 pounds" in the columns of canned goods is presumed to be net weight, according to Government regulations.

TABLE 448.—*Imports of selected agricultural products, annual 1909–10 to 1933–34*

Year beginning July	Butter	Cheese	Milk, fresh [1]	Cream, fresh [2]	Beef and veal, fresh	Beef, corned [3]	Cattle hides, excluding calf and kip		Goatskins	Total hides and skins (except furs)	Wool, unmanufactured, including mohair, etc.
							Wet [4]	Dry [5]			
	1,000 pounds	*1,000 pounds*	*1,000 gallons*	*1,000 gallons*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	1,360	40,818	-------	732	-------	-------	318,004		115,845	608,619	263,928
1910–11	1,008	45,569	-------	2,333	-------	-------	95,498	54,630	86,914	374,891	137,648
1911–12	1,026	46,542	-------	1,120	-------	-------	172,881	78,131	95,341	537,768	193,401
1912–13	1,162	49,388	-------	1,247	[6]	-------	185,447	82,595	96,250	572,197	195,293
1913–14	7,842	63,784	-------	1,773	180,137	-------	208,478	71,485	84,759	561,071	247,649
1914–15	3,828	50,139	-------	2,077	184,491	-------	241,340	93,001	66,547	538,218	308,083
1915–16	713	30,088	-------	1,194	71,102	-------	280,839	153,339	100,657	743,670	534,828
1916–17	524	14,482	-------	744	15,217	-------	225,363	161,237	105,640	700,207	372,372
1917–18	1,806	9,839	-------	712	25,452	-------	190,845	76,655	66,933	432,517	379,130
1918–19	4,131	2,442	2,592	[6]	36,670	127,135	220,695	33,182	89,005	448,142	422,415
1919–20	20,771	17,914	3,989	[6]	42,436	1,434	328,209	111,252	126,996	798,569	427,578
1920–21	34,344	16,585	4,391	[6]	41,956	3,081	173,759	24,814	41,728	352,193	318,236
1921–22	9,551	34,271	4,536	[6]	28,001	169	186,498	18,438	83,535	392,904	255,087
1922–23	15,772	54,555	5,148	[6]	32,481	2,393	346,613	58,770	89,401	682,893	525,473
1923–24	29,466	66,597	6,623	[7] 1,646	25,144	5,892	158,363	18,112	65,881	365,194	239,122
1924–25	7,189	61,489	6,418	4,765	12,419	10,060	184,934	14,376	65,956	387,447	284,706
1925–26	6,440	62,412	7,479	4,798	18,279	14,973	141,081	14,506	86,484	355,266	345,512
1926–27	10,710	89,782	6,106	5,273	22,098	32,158	145,651	11,287	83,571	368,876	271,128
1927–28	4,955	75,424	5,425	4,819	47,650	38,617	280,901	26,461	84,751	532,379	248,035
1928–29	3,299	84,606	5,016	3,173	62,481	73,191	202,489	13,859	94,486	447,384	270,937
1929–30	2,851	78,261	3,314	2,474	30,190	82,489	284,302	10,530	101,120	548,567	220,476
1930–31	1,329	57,972	1,190	844	3,551	16,480	87,526	3,581	80,830	265,854	149,557
1931–32	1,838	57,235	280	118	898	22,483	88,385	3,427	67,038	254,084	103,941
1932–33	991	55,923	33	52	709	32,549	58,192	2,064	54,391	211,548	52,304
1933–34 [8, 9]	687	46,904	40	25	241	39,543	136,543	3,745	87,394	334,586	176,988

Year beginning July	Hair of the Angora (mohair)	Cotton, unmanufactured [10]	Silk [11]	Tobacco, unmanufactured	Rubber and similar gums, crude	Coffee	Tea	Cocoa or cacao beans	Sugar, raw and refined	Molasses	Olives, green or in brine
	1,000 pounds	*1,000 bales*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 short tons*	*1,000 gallons*	*1,000 gallons*
1909–10	-------	180	23,457	46,853	154,621	871,470	85,626	108,668	2,047	31,292	4,555
1910–11	-------	238	26,666	48,203	145,744	875,367	102,564	138,058	1,969	23,838	3,045
1911–12	-------	230	26,585	54,740	175,966	885,201	101,407	145,969	2,052	28,828	5,077
1912–13	-------	255	32,101	67,977	170,747	863,131	94,813	140,039	2,370	33,927	3,946
1913–14	-------	258	34,546	61,175	161,777	1,001,528	91,131	176,268	2,533	51,410	5,316
1914–15	-------	387	31,053	45,809	196,122	1,118,691	96,988	192,307	2,710	70,840	3,622
1915–16	-------	437	41,925	48,078	304,183	1,201,104	109,866	243,232	2,817	85,717	5,938
1916–17	-------	308	40,351	49,105	364,914	1,319,871	103,364	338,654	2,666	110,238	5,642
1917–18	-------	216	43,681	86,991	414,984	1,143,891	151,315	399,040	2,452	130,731	2,385
1918–19	-------	217	50,069	83,951	422,215	1,046,029	108,172	313,037	2,918	130,075	3,501
1919–20	-------	722	58,410	94,005	660,610	1,414,228	97,826	420,331	3,798	154,670	5,206
1920–21	-------	263	34,778	58,923	371,300	1,348,926	72,196	327,123	3,506	113,414	4,054
1921–22	-------	375	57,437	65,225	578,512	1,238,012	86,142	317,124	4,232	87,908	[12]
1922–23	[13]7,220	494	63,188	75,786	810,028	1,305,188	96,669	381,508	4,367	161,135	[12]
1923–24	3,583	305	56,595	54,497	633,489	1,429,617	105,443	382,971	3,765	174,037	6,848
1924–25	2,404	324	70,270	76,870	824,434	1,279,570	92,779	382,570	4,337	215,778	5,901
1925–26	6,463	338	76,838	69,974	962,659	1,437,364	99,411	417,060	4,420	256,246	5,992
1926–27	6,547	400	85,162	92,983	993,272	1,444,847	97,402	425,184	4,420	260,259	5,212
1927–28	2,204	367	87,128	81,045	959,245	1,535,392	90,099	411,543	4,045	248,427	6,458
1928–29	3,134	476	90,662	79,284	1,252,130	1,435,070	92,635	419,243	4,753	296,550	6,955
1929–30	1,073	414	87,408	63,181	1,157,817	1,562,058	86,368	421,938	3,641	253,114	8,452
1930–31	474	107	87,861	75,425	1,048,758	1,728,569	87,148	415,442	3,287	217,001	7,429
1931–32	0	139	82,503	73,375	1,098,501	1,628,841	90,459	434,853	3,264	205,968	7,057
1932–33	113	133	76,768	59,545	789,186	1,458,161	94,808	476,421	2,951	145,450	4,674
1933–34 [8, 9]	1,320	157	69,546	55,700	1,221,575	1,598,107	87,691	465,931	2,804	211,169	5,806

[1] Included with condensed and reported in value only prior to 1918–19. Includes cream, fresh 1918–19 to 1923–24. Beginning 1924–25 reported as milk, sweet, sour, and buttermilk.

[2] Included in "all other articles" prior to 1909–10.

[3] Reported in value only prior to 1918–19. Figures are imports for consumption and include corned beef, 1913–14 to 1924–25.

[4] Wet salted over 25 pounds.

[5] Dry salted over 12 pounds.

[6] Not separately classified.

[7] Beginning Jan. 1, 1924; 6 months' figure.

[8] Preliminary.

[9] Imports for consumption beginning 1933–34.

[10] Bales of 478 pounds net.

[11] Includes "silk, raw or as reeled from cocoon," "silk waste", and "silk cocoons."

[12] Reported in value only.

[13] Beginning Sept. 22, 1922.

TABLE 448.—*Imports of selected agricultural products, annual 1909–10 to 1933–34*—Continued

Year beginning July	Bananas	Lemons [14]	Beans, dry	Onions	Tomatoes, fresh	Almonds in terms of shelled [15]	Peanuts in terms of shelled [15]	Walnuts in terms of shelled [15]	Copra [16]	Flaxseed
	1,000 bunches	*1,000 boxes*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 bushels*
1909–10	38, 157	2, 165	1, 015	1, 024	----------	18, 556	29, 276	33, 641	21, 306	5, 002
1910–11	44, 699	1, 824	1, 037	1, 515	----------	15, 523	18, 834	33, 619	37, 817	10, 499
1911–12	44, 521	1, 968	1, 005	1, 436	----------	17, 231	11, 248	37, 214	64, 581	6, 842
1912–13	42, 357	2, 046	1, 048	789	----------	13, 856	14, 989	17, 213	34, 268	5, 294
1913–14	48, 684	(12)	1, 634	1, 115	----------	15, 027	38, 726	20, 800	45, 437	8, 653
1914–15	41, 092	(12)	906	829	----------	13, 679	19, 338	20, 490	90, 547	10, 606
1915–16	36, 755	(12)	663	816	----------	14, 546	25, 407	23, 733	110, 078	14, 679
1916–17	34, 661	(12)	3, 748	1, 758	----------	19, 916	32, 385	23, 839	247, 036	12, 394
1917–18	34, 550	(12)	4, 146	1, 313	----------	20, 845	75, 463	16, 252	486, 996	13, 367
1918–19	35, 382	(12)	4, 016	152	----------	25, 615	20, 425	9, 057	301, 965	8, 427
1919–20	36, 848	(12)	3, 806	1, 884	----------	28, 533	128, 390	28, 961	218, 522	23, 392
1920–21	40, 808	(12)	824	689	----------	15, 861	46, 202	15, 902	192, 246	16, 170
1921–22	46, 120	1, 373	520	2, 488	----------	28, 036	9, 678	35, 174	249, 722	13, 632
1922–23	44, 504	1, 660	2, 623	1, 783	(6)	24, 345	45, 013	25, 970	306, 100	25, 006
1923–24	44, 935	1, 018	886	1, 406	[7] 50, 838	24, 207	50, 683	26, 428	299, 774	19, 577
1924–25	50, 513	1, 264	1, 421	2, 075	69, 216	22, 503	93, 191	36, 623	328, 652	13, 419
1925–26	58, 550	1, 247	1, 271	2, 194	82, 448	19, 686	36, 026	31, 698	392, 759	19, 354
1926–27	57, 102	659	1, 051	2, 298	124, 489	15, 890	49, 792	31, 776	454, 546	24, 224
1927–28	64, 029	1, 308	2, 465	1, 399	113, 357	18, 496	63, 783	20, 347	456, 158	18, 112
1928–29	63, 530	391	1, 505	2, 050	128, 627	18, 673	30, 412	24, 500	629, 937	23, 494
1929–30	65, 909	1, 229	2, 534	918	139, 886	19, 956	10, 175	20, 228	493, 456	19, 652
1930–31	57, 841	350	1, 346	214	113, 480	13, 264	9, 002	17, 818	565, 397	7, 813
1931–32	51, 785	176	222	665	122, 215	8, 338	1, 407	13, 042	445, 741	13, 850
1932–33	45, 114	146	157	73	59, 028	4, 906	239	6, 759	494, 821	6, 213
1933–34 [8 9]	43, 096	47	145	80	46, 150	3, 412	320	5, 682	653, 182	17, 901

Year beginning July	Jute and jute butts, unmanufactured	Manila or abaca	Sisal and henequen	Eggs, whole, in the shell	Eggs and egg yolks, dried, frozen, or prepared	Whole eggs, dried	Whole eggs, frozen	Yolks, dried	Yolks, frozen	Egg albumen, dried	Egg albumen, frozen, prepared, and preserved
	1,000 long tons	*1,000 long tons*	*1,000 long tons*	*1,000 dozen*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	68	93	100	----------	----------	----------	----------	----------	----------	----------	----------
1910–11	65	74	118	----------	----------	----------	----------	----------	----------	----------	----------
1911–12	101	69	114	----------	----------	----------	----------	----------	----------	----------	----------
1912–13	125	74	154	1, 367	228	----------	----------	----------	----------	----------	----------
1913–14	106	50	216	6, 015	3, 420	----------	----------	----------	----------	----------	----------
1914–15	83	51	186	3, 047	8, 572	----------	----------	----------	----------	----------	----------
1915–16	108	79	229	733	6, 022	----------	----------	----------	----------	----------	----------
1916–17	113	77	143	1, 110	10, 318	----------	----------	----------	----------	----------	----------
1917–18	78	86	150	1, 619	14, 598	----------	----------	----------	----------	----------	----------
1918–19	53	68	153	848	9, 085	----------	----------	----------	----------	----------	----------
1919–20	77	77	176	1, 348	24, 091	----------	----------	----------	----------	----------	----------
1920–21	90	52	159	3, 316	28, 768	----------	----------	----------	----------	(6)	----------
1921–22	62	44	72	1, 224	16, 540	----------	----------	----------	----------	7, 388	----------
1922–23	85	98	98	535	14, 821	----------	----------	----------	----------	3, 213	----------
1923–24	84	98	97	426	[17] 14, 830	[7] 544	[7] 1, 106	[7] 522	[7] 1, 210	6, 642	[7] 636
1924–25	56	73	146	682	----------	1, 884	8, 751	4, 281	4, 151	3, 257	1, 106
1925–26	71	62	126	276	----------	1, 305	12, 647	6, 004	5, 662	4, 490	5, 119
1926–27	89	61	116	296	----------	1, 132	8, 114	4, 468	4, 601	3, 859	3, 967
1927–28	81	48	124	256	----------	575	611	3, 486	1, 229	2, 361	553
1928–29	92	60	135	291	----------	2, 133	12, 616	5, 130	4, 581	2, 898	610
1929–30	80	73	113	337	----------	1, 839	9, 824	7, 819	3, 475	4, 363	955
1930–31	49	43	84	301	----------	822	113	6, 069	1, 052	2, 219	2
1931–32	52	27	109	282	----------	543	2	1, 920	443	1, 722	0
1932–33	38	25	166	262	----------	19	(18)	1, 595	403	1, 424	0
1933–34 [8 9]	60	43	116	198	----------	7	81	1, 809	308	361	0

[6] Not separately classified.
[7] Beginning Jan. 1, 1924; 6 months' figure.
[8] Preliminary.
[9] Imports for consumption beginning 1933–34.
[12] Reported in value only.
[14] Boxes of 74 pounds.
[15] Conversion factors used: almonds, 30 percent unshelled equals shelled; peanuts, 3 pounds unshelled equals 2 pounds shelled; walnuts, 42 percent unshelled equals shelled.
[16] Reported as "coconut meat broken, or copra, not shredded, desiccated or prepared" 1909–10 to 1921–22; 1922–23 to 1924–25 reported as "copra, not prepared," 1925–26 to date reported as "copra."
[17] July 1–Dec. 31, 1923.
[18] Less than 500.

Bureau of Agricultural Economics; compiled from Commerce and Navigation of the United States 1909–18, and Monthly Summary of Foreign Commerce, June issues, 1919–34.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
ANIMAL PRODUCTS								
Butter:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	0	20	5	20	80	(2)	1	(2)
Honduras	150	143	157	164	151	139	108	72
Panama	582	311	227	342	157	135	369	206
Mexico	859	724	672	617	426	179	128	161
Cuba	734	479	370	96	6	9	1	1
Haiti, Republic of	498	479	479	458	394	401	291	208
Other West Indies [3]	550	391	394	380	270	244	214	186
Colombia	163	143	164	122	61	23	12	18
Peru	356	358	451	371	67	57	14	8
Venezuela	381	190	264	329	269	119	45	38
Philippine Islands	187	190	152	210	154	84	83	383
Other countries	588	537	443	473	258	188	120	135
Total	5,048	3,965	3,778	3,582	2,293	1,578	1,386	1,416
Cheese:								
Panama	434	432	460	485	442	535	640	505
Mexico	670	581	423	506	293	133	69	108
Canada	350	259	170	176	179	84	44	66
Honduras	68	69	82	105	86	73	50	31
British Honduras	67	72	76	64	61	52	25	12
Cuba	832	359	405	170	72	143	56	59
Virgin Islands	62	65	70	65	54	62	59	65
Haiti, Republic of	86	80	72	58	59	51	26	26
Other West Indies [3]	331	186	218	129	94	69	72	28
China	252	145	89	45	29	39	36	110
Philippine Islands	110	146	130	134	143	158	150	89
Other countries	511	479	377	402	221	165	119	154
Total	3,773	2,873	2,572	2,339	1,733	1,564	1,346	1,253
Milk:								
Condensed:								
Total Europe	424	151	70	21	14	6	31	5
Cuba	12,843	11,462	13,103	13,196	3,651	1,378	360	3
Philippine Islands	6,471	7,575	7,339	7,347	7,566	5,817	1,382	2,625
Japan	4,029	5,385	5,473	4,701	4,167	3,543	0	(2)
Hong Kong	2,065	3,764	3,739	3,905	2,372	2,339	1,325	1
China	3,621	2,513	2,840	2,173	1,319	886	699	12
Mexico	1,308	985	883	1,055	605	281	224	219
Jamaica	754	467	523	380	612	595	1,073	1,077
Honduras	319	402	549	550	515	384	282	261
Costa Rica	566	595	746	524	370	208	129	115
Venezuela	369	439	550	480	452	298	176	133
Other countries	3,030	3,237	3,750	3,439	1,291	805	666	724
Total	35,799	36,975	39,565	37,771	22,934	16,540	6,347	5,175
Evaporated:								
United Kingdom	27,418	23,805	21,759	11,877	15,978	15,287	926	1,038
Other Europe	3,109	596	508	457	367	218	31	72
Total Europe	30,527	24,401	22,267	12,334	16,345	15,505	957	1,110
Philippine Islands	12,806	15,563	16,372	17,153	18,684	16,279	19,598	16,920
Panama	4,127	3,589	4,606	4,805	2,898	4,308	4,616	4,597
Peru	4,215	3,569	4,027	3,602	1,583	1,355	242	830
China	3,025	3,035	3,447	2,056	816	529	555	747
British Malaya	1,932	2,817	2,761	3,359	1,026	592	628	526
Cuba	2,958	2,647	2,272	2,935	486	207	179	287
Japan	1,616	2,466	2,544	2,785	2,867	2,446	184	196
Mexico	2,714	2,157	2,185	2,274	1,296	685	700	907
Netherland West Indies	672	834	1,488	1,765	988	1,235	1,373	1,033
Netherlands Indies	1,221	1,389	1,422	1,991	1,772	1,256	879	818
Siam	606	1,426	1,119	1,363	748	1,242	1,847	1,848
Newfoundland and Labrador	797	1,103	1,035	966	970	808	503	561
Other countries	5,927	6,972	7,349	6,413	5,573	2,636	1,405	2,533
Total	73,143	71,968	72,894	63,801	56,052	49,083	33,666	32,913

[1] Preliminary

[2] Less than 500.

[3] Excludes Bermudas

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
ANIMAL PRODUCTS—continued								
Pork:								
Bacon, including Cumberland sides:[4]	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	68,220	50,127	53,364	57,443	26,203	10,403	3,902	3,910
Germany	6,818	9,838	5,982	8,468	1,151	2,043	1,300	2,541
Italy	1,439	8,113	15,106	8,289	764	822	1,808	2,130
Finland	4,493	6,075	4,633	3,734	1,549	722	1,176	2,106
Norway	2,422	3,244	2,742	2,642	712	174	134	266
Sweden	5,061	4,689	3,649	4,648	3,264	946	1,416	1,549
Irish Free State	64	402	933	2,273	1,126	266	25	0
Netherlands	2,502	632	1,198	2,959	61	657	76	780
Other Europe	7,542	16,434	15,628	15,933	582	255	974	2,553
Total Europe	98,561	99,554	103,235	106,389	35,412	16,288	10,811	15,835
Cuba	21,070	19,107	16,698	15,957	12,399	7,128	4,629	4,531
Canada	4,584	5,173	5,769	5,617	2,388	650	270	676
Panama	228	341	401	499	421	330	388	472
Newfoundland and Labrador	1,181	731	626	557	372	278	270	542
Mexico	285	221	225	233	189	114	109	126
Other countries	1,634	1,840	2,291	2,418	1,231	788	1,223	1,659
Total	127,543	126,967	129,245	131,670	52,412	25,576	17,700	23,841
Hams and shoulders, including Wiltshire sides:[5]								
United Kingdom	124,391	104,020	100,959	103,169	81,294	58,126	61,647	62,328
Belgium	451	660	1,003	2,136	1,464	607	574	211
Other Europe	1,424	1,846	2,024	1,155	236	193	1,071	745
Total Europe	126,266	106,526	103,986	106,460	82,994	58,926	63,292	63,284
Cuba	6,548	8,167	7,435	6,307	4,272	4,559	3,181	2,271
Canada	4,803	6,134	6,309	11,370	5,895	694	225	225
Other countries	6,032	6,992	7,666	7,435	6,588	5,155	4,515	5,708
Total	143,649	127,819	125,396	131,572	99,749	69,334	71,213	71,488
Canned:								
United Kingdom	5,595	7,632	6,555	10,737	9,066	8,751	8,106	10,344
Other Europe	80	97	145	238	193	78	66	121
Total Europe	5,675	7,729	6,700	10,975	9,259	8,829	8,172	10,465
Philippine Islands	48	32	36	64	112	173	216	304
Canada	188	179	244	241	225	101	47	59
China	11	7	7	145	127	167	205	56
Panama	14	15	23	39	90	169	200	195
Other countries	795	652	964	1,319	739	580	396	792
Total	6,731	8,614	7,974	12,783	10,552	10,019	9,236	11,871
Fresh:								
United Kingdom	7,128	6,418	4,547	10,527	8,098	6,672	4,582	24,689
Other Europe	260	1,002	2,515	3,685	464	241	889	929
Total Europe	7,388	7,420	7,062	14,212	8,562	6,913	5,471	25,618
Cuba	1,763	1,557	1,732	1,618	424	161	47	15
Canada	590	798	582	1,091	410	72	18	195
Panama	420	558	444	753	771	1,430	1,844	1,530
Philippine Islands	143	194	288	239	222	257	255	210
Other countries	577	532	533	858	704	437	547	731
Total	10,881	11,059	10,641	18,771	11,093	9,270	8,182	28,299
Pickled:								
United Kingdom	3,857	5,184	7,608	5,094	2,945	1,585	1,130	1,185
Norway	394	722	854	799	364	210	230	117
Germany	134	289	366	328	89	54	37	156
Other Europe	416	821	1,420	1,194	327	279	471	766
Total Europe	4,801	7,016	10,248	7,415	3,725	2,128	1,868	2,525
Cuba	7,760	7,626	10,550	9,798	4,862	1,923	1,634	1,113
Canada	5,800	7,056	8,596	11,211	4,356	3,058	2,565	3,974
Newfoundland and Labrador	3,532	3,734	4,530	4,792	3,681	3,423	3,720	5,714
British West Indies and Bermudas	2,750	2,851	2,810	221	2,226	2,464	2,420	2,957
Haiti, Republic of	917	1,055	838	719	544	513	515	518
Other countries	2,422	2,312	2,334	5,677	1,724	1,720	1,654	2,270
Total	27,962	31,650	39,906	39,833	21,118	15,229	14,276	19,070

[1] Preliminary.
[4] Beginning July 1931, includes "Wiltshire sides."
[5] Beginning July 1931, "Wiltshire sides" included with "Bacon, including Cumberland sides."

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
ANIMAL PRODUCTS—continued								
Lard:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	222,086	233,564	229,899	240,147	256,353	239,358	255,769	313,805
Germany	174,621	176,771	195,695	180,074	107,317	142,354	158,226	72,599
Netherlands	46,071	35,784	36,992	48,584	26,478	29,980	42,066	24,271
Italy	7,642	20,384	29,200	19,865	6,064	7,125	5,646	9,264
Belgium	12,718	14,541	14,841	18,700	9,406	5,750	10,150	16,850
Other Europe	26,238	38,144	49,070	56,031	14,791	8,799	12,776	12,786
Total Europe	489,376	519,188	555,697	563,401	420,409	433,366	484,633	449,575
Cuba	79,599	78,469	84,316	79,860	49,004	38,406	10,023	14,247
Mexico	41,963	52,475	56,728	68,531	67,491	35,483	38,085	47,630
Colombia	12,623	15,782	23,375	19,479	11,836	4,284	113	103
Canada	14,888	16,172	17,864	15,112	12,224	6,197	3,482	282
Other countries	37,363	34,312	42,934	40,777	24,706	24,903	23,963	35,160
Total	675,812	716,398	780,914	787,160	585,670	542,639	560,299	546,997
Lard, neutral:								
Netherlands	5,260	6,784	4,710	6,260	3,264	2,554	1,616	598
Germany	5,895	5,623	4,023	3,010	1,421	1,152	887	135
United Kingdom	3,530	5,096	3,919	2,320	1,526	745	602	424
Norway	1,039	1,228	895	755	529	455	210	89
Denmark	726	1,176	894	1,379	1,453	804	647	911
Sweden	912	696	649	787	766	765	471	734
Other Europe	921	1,206	1,463	1,197	1,015	916	1,050	1,481
Total Europe	18,283	21,809	16,553	15,708	9,974	7,391	5,483	4,372
Other countries	1,774	1,990	1,762	1,075	785	290	75	44
Total	20,057	23,799	18,315	16,783	10,759	7,681	5,558	4,416
Oleo oil:								
Germany	25,443	18,267	16,835	14,630	13,934	11,570	11,671	4,755
Netherlands	27,270	17,608	16,744	22,158	15,868	11,698	8,808	4,770
United Kingdom	18,691	16,092	16,328	11,735	13,179	9,883	9,825	11,065
Norway	5,460	3,596	2,763	2,549	2,018	1,500	1,031	719
Greece	3,972	454	602	750	1,587	1,519	461	428
Belgium	1,875	1,576	1,780	1,470	1,337	1,716	1,964	2,079
Denmark	2,691	2,079	2,062	2,865	2,408	2,134	1,654	1,020
Other Europe	2,726	1,939	2,367	1,883	1,808	1,415	1,625	1,949
Total Europe	88,128	61,611	59,481	58,040	52,639	41,435	37,039	26,785
Other countries	4,592	3,240	3,706	3,053	2,322	2,327	2,593	644
Total	92,720	64,851	63,187	61,093	54,961	43,762	39,632	27,429
VEGETABLE PRODUCTS								
Cotton, unmanufactured:[6]								
Lint:	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
Germany	2,829	2,090	1,891	1,770	1,752	1,629	1,907	1,477
United Kingdom	2,623	1,443	1,918	1,306	1,108	1,314	1,520	1,412
France	1,063	904	841	860	986	487	895	799
Italy	841	708	765	705	495	673	833	722
Belgium	286	213	217	182	143	143	196	135
Spain	259	321	301	285	268	309	350	320
Netherlands	251	144	168	143	147	157	137	121
Other Europe	661	605	497	316	214	297	444	608
Total Europe	8,813	6,428	6,598	5,567	5,113	5,009	6,282	5,594
Japan	1,644	1,007	1,373	1,071	1,233	2,396	1,717	2,060
China	262	136	245	232	393	1,143	352	366
Other countries	562	319	304	226	309	441	296	346
Total	11,281	7,890	8,520	7,096	7,048	8,989	8,647	8,366
Linters:								
Germany	154	132	120	70	56	59	76	85
France	26	36	32	26	27	24	34	25
United Kingdom	51	22	16	7	11	16	41	53
Belgium	12	7	12	8	5	1	14	2
Other Europe	15	15	18	14	14	16	25	19
Total Europe	258	212	198	125	113	116	190	184
Canada	20	18	19	17	16	14	13	11
Other countries	0	1	2	1	3	15	15	21
Total	278	231	219	143	132	145	218	216

[1] Preliminary.

[6] Bales of 500 pounds gross.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued								
Fruits:								
Dried:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Apples:								
Germany	12,158	10,877	22,085	11,425	18,470	12,055	17,835	19,971
Netherlands	9,568	3,315	12,451	4,323	8,763	8,154	7,569	7,226
Sweden	2,278	2,524	2,985	3,015	1,846	2,501	4,043	3,037
Denmark	1,371	1,384	1,674	894	1,161	1,429	1,205	848
United Kingdom	2,282	1,018	2,618	1,522	1,755	2,198	1,366	1,104
Other Europe	3,656	1,617	6,995	1,880	5,598	4,656	4,001	4,578
Total Europe	31,313	20,735	48,808	23,059	37,593	30,993	36,019	36,764
Other countries	1,357	969	1,216	710	528	564	582	575
Total	32,670	21,704	50,024	23,769	38,121	31,557	36,601	37,339
Apricots:								
Germany	4,593	6,512	7,742	6,091	8,695	11,798	10,790	12,450
Netherlands	3,316	4,651	3,750	2,493	2,933	3,913	2,812	3,192
United Kingdom	2,084	1,964	1,422	1,019	1,243	2,789	3,170	2,605
Belgium	1,038	1,374	1,691	891	1,932	2,007	1,766	2,201
Norway	945	1,260	988	1,327	786	1,389	1,132	717
Sweden	952	994	776	939	835	1,151	1,212	952
Denmark	1,962	2,469	1,959	2,066	2,290	3,369	1,453	1,774
France	409	1,273	3,015	1,310	2,458	7,139	8,250	8,827
Other Europe	477	661	936	728	820	1,370	888	1,362
Total Europe	15,776	21,158	22,279	16,864	21,992	34,925	31,473	34,080
Canada	1,257	1,920	1,614	1,431	1,036	1,833	1,942	1,532
Other countries	868	606	759	806	619	684	853	1,004
Total	17,901	23,684	24,652	19,101	23,647	37,622	34,268	36,616
Prunes:								
Germany	38,553	79,732	77,883	44,789	97,631	62,539	34,858	64,463
United Kingdom	40,173	45,601	40,836	28,143	39,824	42,757	31,610	32,161
France	27,217	27,390	59,822	9,298	46,571	46,882	41,019	29,398
Netherlands	10,242	23,140	17,286	5,584	18,903	9,309	7,611	7,632
Sweden	6,854	7,047	5,434	6,744	8,712	8,788	6,803	6,780
Italy	1,368	5,533	7,700	2,867	15,851	13,262	6,236	3,345
Denmark	6,136	9,992	6,611	6,034	9,426	7,985	6,605	6,184
Belgium	6,019	9,402	9,885	3,387	9,614	6,652	6,397	7,903
Norway	2,590	5,036	3,685	3,019	5,313	5,063	4,561	3,848
Other Europe	6,558	10,701	11,652	6,992	15,970	14,935	11,565	14,637
Total Europe	145,710	223,574	240,794	116,857	267,815	218,172	157,265	176,351
Canada	20,454	23,272	18,965	16,187	16,456	17,161	15,107	16,027
Other countries	9,380	13,779	13,292	9,945	11,983	8,602	9,982	10,454
Total	175,544	260,625	273,051	142,989	296,254	243,935	182,354	202,832
Raisins:								
United Kingdom	49,991	70,034	71,375	36,443	40,293	48,458	47,466	30,250
Germany	16,039	18,733	23,022	14,059	14,628	16,899	15,494	14,730
Netherlands	13,857	18,598	24,278	7,436	8,827	7,315	4,553	4,328
Denmark	1,994	1,593	2,244	1,286	1,385	1,834	1,770	1,346
Belgium	4,315	5,543	6,074	2,268	2,773	2,904	1,254	1,435
France	2,144	3,496	4,455	2,750	3,303	3,507	4,073	3,872
Sweden	6,065	10,285	14,782	9,639	10,510	8,916	8,383	6,601
Other Europe	3,309	3,643	6,555	3,734	3,221	4,577	5,786	6,558
Total Europe	97,714	131,925	152,785	77,615	84,940	94,410	88,779	69,120
Canada	37,400	40,148	39,635	28,668	22,894	14,576	9,295	10,949
China	3,549	4,144	7,574	4,791	1,816	1,627	1,717	2,249
Japan	2,801	3,086	2,961	2,992	2,140	1,922	1,489	1,158
Other countries	10,873	13,796	18,801	14,631	13,310	9,678	11,227	10,478
Total	152,337	193,099	221,756	128,697	125,100	122,213	112,507	93,954
Fresh:	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*
Apples:								
United Kingdom	3,305	1,004	1,720	953	954	1,893	1,048	392
Germany	361	27	236	50	404	73	225	272
Netherlands	141	2	201	17	334	49	50	50
Belgium	80	1	321	14	313	189	132	191
France	4	(2)	62	8	131	367	35	20

[1] Preliminary.
[2] Less than 500.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued								
Fruits—Continued.								
Fresh—Continued:								
Apples—Continued.	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*
Denmark	151	42	81	41	65	73	19	19
Other Europe	112	108	165	126	67	117	103	35
Total Europe	4,154	1,184	2,786	1,209	2,268	2,761	1,612	979
Other countries	329	165	219	218	211	57	42	67
Total	4,483	1,349	3,005	1,427	2,479	2,818	1,654	1,046
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
United Kingdom	3,723	2,709	4,836	2,655	3,991	3,475	2,429	2,183
Germany	1,237	737	2,695	946	3,476	1,988	2,222	2,329
Netherlands	670	72	1,687	272	2,417	1,303	1,660	1,627
France	6	1	77	49	677	913	883	1,133
Other Europe	506	506	762	549	824	771	554	560
Total Europe	6,142	4,025	10,057	4,471	11,385	8,450	7,748	7,832
Canada	730	542	636	500	475	238	113	40
Argentina	155	227	336	294	261	167	91	80
Brazil	172	115	212	224	170	127	128	91
Philippine Islands	120	88	150	88	112	105	104	77
Other countries	525	387	635	421	501	380	320	460
Total	7,844	5,384	12,026	5,998	12,904	9,467	8,504	8,580
	1,000 baskets	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*
Belgium	-------	-------	-------	-------	-------	[7] 12	63	223
United Kingdom	-------	-------	-------	-------	-------	[7] 39	88	78
Germany	-------	-------	-------	-------	-------	[7] 16	51	70
France	-------	-------	-------	-------	-------	[7] 25	32	93
Canada	-------	-------	-------	-------	-------	[7] 18	34	26
Other countries	-------	-------	-------	-------	-------	[7] 1	20	51
Total	-------	-------	-------	-------	-------	[7] 111	288	541
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Pears:								
United Kingdom	35,141	18,993	34,902	22,223	68,981	47,441	61,064	55,942
Netherlands	1,082	527	1,090	883	9,812	4,589	10,599	10,689
Germany	51	135	627	1,217	6,619	1,538	4,687	2,954
Sweden	94	175	1,296	1,170	3,176	2,415	3,515	2,379
France	2	0	104	6	1,732	10,012	20,921	19,831
Belgium	0	0	15	26	1,129	721	22	505
Other Europe	4	79	105	269	880	1,699	828	1,043
Total Europe	36,374	19,909	38,139	25,794	92,329	68,415	101,636	93,343
Canada	27,754	22,119	32,437	23,273	30,101	16,274	11,815	9,035
Brazil	4,079	3,469	5,536	5,533	4,753	2,071	2,807	3,470
Argentina	2,169	1,873	2,751	3,904	3,340	1,478	1,432	1,160
Cuba	2,095	2,044	1,779	1,318	1,214	821	658	394
Mexico	536	688	900	880	803	109	159	137
Venezuela	101	114	153	179	356	234	173	221
Panama	174	190	255	201	277	241	317	365
Other countries	595	650	897	942	1,497	1,059	990	2,883
Total	73,877	51,056	82,847	62,024	134,670	90,702	119,987	111,008
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
Lemons:								
Canada	287	154	228	132	210	209	117	151
New Zealand	18	14	16	9	10	3	1	17
China	14	11	13	10	8	7	6	6
Japan	13	15	17	18	19	22	12	7
Philippine Islands	8	5	7	6	7	6	5	5
Hong Kong	3	3	2	2	2	3	2	2
Panama	2	2	2	3	2	2	1	2
Other countries	22	10	17	9	10	6	6	5
Total	367	214	302	189	268	258	150	195

[1] Preliminary.
[7] 6 months, January–June.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued.								
Fruits—Continued.								
Fresh—Continued.								
Oranges:	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
United Kingdom	403	402	709	796	669	628	787	871
Canada	2,636	2,346	3,151	2,568	2,873	2,470	2,082	2,010
Other countries	301	240	363	310	442	436	522	568
Total	3,340	2,988	4,223	3,674	3,984	3,534	3,391	3,449
Grapefruit:								
United Kingdom	310	333	561	496	741	692	534	505
Canada	264	349	335	308	408	453	328	372
Germany	8	6	8	10	23	13	5	7
France	4	4	4	5	7	6	9	17
Other countries	27	27	32	35	43	38	26	45
Total	613	719	940	854	1,222	1,202	902	946
Canned:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Apricots:								
United Kingdom	29,533	23,013	18,115	26,526	15,423	20,329	17,151	21,251
France	1,458	781	2,677	1,311	703	679	545	622
Other Europe	1,909	2,236	2,656	2,685	1,213	1,476	1,246	1,620
Total Europe	32,900	26,030	23,448	30,522	17,339	22,484	18,942	23,493
Canada	1,422	1,316	1,323	1,376	687	107	108	42
Other countries	1,575	1,667	1,478	1,337	998	570	454	780
Total	35,897	29,013	26,249	33,235	19,024	23,161	19,504	24,315
Grapefruit:								
United Kingdom					[7] 4,782	6,264	14,402	31,326
Other Europe					[7] 107	81	120	156
Total Europe					[7] 4,889	6,345	14,522	31,482
Canada					[7] 1,269	209	156	238
Other countries					[7] 146	95	121	178
Total					[7] 6,304	6,649	14,799	31,898
Fruits for salad:								
United Kingdom			[7] 14,755	26,191	28,248	29,859	25,022	37,761
Other Europe			[7] 573	1,228	1,011	1,383	1,136	1,503
Total Europe			[7] 15,328	27,419	29,259	31,242	26,158	39,264
Canada			[7] 559	1,153	669	184	58	92
Other countries			[7] 665	1,576	1,691	776	718	1,002
Total			[7] 16,552	30,148	31,619	32,202	26,934	40,358
Peaches:								
United Kingdom	64,874	65,942	73,261	54,383	61,422	58,703	67,578	72,987
France	1,906	1,256	4,252	1,301	1,213	901	760	961
Netherlands	1,096	1,739	2,530	1,733	1,275	1,522	2,247	2,050
Other Europe	2,961	3,119	5,524	4,560	2,730	2,776	2,087	2,688
Total Europe	70,837	72,056	85,567	61,977	66,640	63,902	72,672	78,686
Canada	5,105	6,873	8,813	7,517	3,038	414	436	187
Cuba	2,258	2,203	1,410	1,085	1,047	210	121	256
Other countries	3,696	5,502	5,648	3,891	5,038	1,774	1,770	2,335
Total	81,896	86,634	101,438	74,470	75,763	66,300	74,999	81,464
Pears:								
United Kingdom	59,128	46,822	73,910	47,827	68,763	68,024	57,819	74,454
Irish Free State	320	394	678	639	533	851	796	1,210
France	589	216	909	416	474	360	278	321
Netherlands	523	518	714	274	165	104	352	380
Germany	240	189	459	446	353	329	69	172
Other Europe	667	677	739	809	858	462	299	389
Total Europe	61,467	48,816	77,409	50,411	71,146	70,130	59,613	76,926
Canada	952	954	1,425	1,258	800	201	300	67
Cuba	1,589	1,024	1,107	701	662	105	64	140
Netherlands Indies	289	153	299	267	250	141	72	153

[1] Preliminary.
[7] 6 months, January–June.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued								
Fruits—Continued.								
Canned—Continued.								
Pears—Continued.	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British India	165	155	186	210	266	125	71	118
Philippine Islands	61	92	50	53	50	53	41	46
Other countries	1,781	1,477	2,176	1,809	1,180	815	601	934
Total	66,104	52,671	82,652	54,709	74,354	71,570	60,762	78,384
Pineapples:								
United Kingdom	11,468	14,187	13,281	14,232	12,915	7,348	4,750	6,919
Germany	9,171	16,656	14,043	11,472	5,471	4,768	4,033	5,952
France	2,316	2,511	3,264	4,222	2,600	2,484	2,053	2,164
Netherlands	1,789	2,262	1,533	2,009	2,089	656	1,079	1,596
Sweden	1,219	1,664	1,592	1,705	887	729	581	757
Other Europe	2,504	3,730	3,749	3,769	3,880	2,968	2,488	2,936
Total Europe	28,467	41,010	37,462	37,409	27,842	18,953	14,984	20,324
Canada	6,312	7,250	7,675	6,144	5,630	780	268	637
China	508	728	391	597	613	335	111	198
Other countries	2,139	2,239	2,005	2,159	1,223	852	560	672
Total	37,426	51,227	47,533	46,309	35,308	20,920	15,923	21,831
Grain and grain products:								
Barley (grain):	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Germany	2,066	11,599	13,085	1,521	0	77	123	0
United Kingdom	8,981	10,151	13,161	9,370	8,670	4,237	6,607	5,324
Netherlands	815	2,581	3,909	479	8	234	175	0
Belgium	1,576	642	1,782	651	775	171	1,734	91
Other Europe	816	634	749	756	537	162	12	160
Total Europe	14,254	25,607	32,686	12,777	9,990	4,881	8,651	5,575
Canada	2,184	10,453	23,886	8,144	9	116	360	95
Other countries	606	520	424	623	303	87	144	265
Total	17,044	36,580	56,996	21,544	10,302	5,084	9,155	5,935
Corn (grain):								
Netherlands	560	4,311	7,977	126	50	65	759	154
Germany	2	2,520	4,241	0	69	114	156	58
United Kingdom	1,268	1,885	8,237	20	8	322	1,001	263
Denmark	563	845	896	0	1	0	197	(2)
Canada	10,536	6,454	11,082	7,390	1,414	2,681	5,183	3,627
Cuba	2,016	1,021	765	226	18	2	47	58
Mexico	2,124	323	572	1,297	823	7	8	7
Other countries	494	1,015	6,974	295	146	153	842	238
Total	17,563	18,374	40,744	9,354	2,529	3,344	8,193	4,405
Oats (grain):								
United Kingdom	1,259	645	1,177	13	0	0	45	0
Belgium	352	123	257	0	0	0	82	0
Germany	297	115	0	0	0	0	0	0
France	239	44	141	0	0	0	0	0
Other Europe	385	316	1,620	2	0	2	[3] 595	0
Total Europe	2,532	1,243	3,195	15	0	2	722	0
Canada	5,198	3,426	6,501	3,913	680	1,952	2,977	289
Cuba	1,170	1,028	861	490	61	352	223	11
Mexico	132	98	51	44	35	34	33	21
Other countries	213	239	240	173	131	139	130	130
Total	9,245	6,034	10,848	4,635	907	2,479	4,085	451
Oatmeal:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	18,885	14,447	23,775	8,358	4,833	8,990	2,537	156
Finland	13,219	9,471	17,335	8,441	431	2,569	1	0
Netherlands	25,930	7,485	14,525	7,804	9,479	6,658	5,864	2,172
Belgium	4,736	2,890	3,064	801	1,955	1,775	1,536	1,316
Other Europe	12,036	5,456	9,249	2,637	1,160	1,300	1,494	1,969
Total Europe	74,806	39,749	67,948	28,041	17,858	21,292	11,432	5,613

[1] Preliminary.
[2] Less than 500.
[3] Exports to Netherlands.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued.								
Grains and grain products—Contd.	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Oatmeal—Continued.								
South America	1,164	9,757	11,389	10,431	8,093	5,101	4,142	4,826
Mexico	4,027	3,739	3,802	4,054	3,202	1,640	1,423	453
Canada	1,913	3,582	1,556	5,402	1,046	812	694	336
British India	850	1,770	1,594	2,013	1,400	926	44	30
Other countries	21,574	9,595	10,956	10,012	8,287	5,483	5,228	5,913
Total	104,334	68,192	97,245	59,953	39,886	35,254	22,963	17,171
Rice (grain):								
Germany	36,917	35,851	43,799	37,915	34,527	41,670	29,855	18,172
United Kingdom	33,675	35,459	41,812	35,854	32,364	35,716	15,534	12,919
Belgium	18,764	12,778	23,167	8,959	14,735	11,994	10,244	9,007
France	5,169	12,388	16,065	13,419	18,187	22,190	19,095	23,602
Netherlands	17,386	23,660	19,427	15,080	18,155	11,672	8,810	6,687
Greece	4,331	1,574	6,739	4,662	8,479	12,302	2,479	5,368
Sweden	1,255	4,801	7,590	2,838	4,103	4,157	3,139	2,606
Denmark	1,822	3,267	6,770	3,861	2,397	2,574	1,970	1,215
Other Europe	2,595	4,041	7,748	9,161	9,743	10,397	4,206	6,782
Total Europe	121,914	133,819	173,117	131,749	142,690	152,672	95,332	86,358
South America	24,847	41,205	78,719	69,297	54,899	17,618	14,373	1,502
Central America	3,468	5,888	5,852	5,031	4,607	2,678	1,696	588
Japan	68,518	2,020	14,609	935	378	363	53	0
Canada	7,525	14,227	19,800	18,239	17,342	20,323	12,253	8,973
Other countries	8,276	33,273	21,308	9,908	4,633	20,819	12,199	3,142
Total	234,548	230,432	313,405	235,159	224,549	214,473	135,906	100,563
Rye (grain):	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
United Kingdom	2,345	1,710	1,174	21	0	0	0	0
Netherlands	1,768	1,408	868	0	21	278	167	0
Germany	1,577	1,245	364	21	0	290	0	0
Denmark	510	466	406	69	48	54	28	0
Norway	489	298	57	3	0	0	0	0
France	289	145	13	11	17	0	0	0
Belgium	441	135	9	0	41	0	0	0
Italy	0	0	0	0	40	0	0	0
Other Europe	66	567	490	17	1	0	0	0
Total Europe	7,485	5,974	3,381	142	168	622	195	0
Canada	14,118	20,080	5,913	2,347	0	223	116	16
Other countries	10	10	52	49	11	7	(2)	5
Total	21,613	26,064	9,346	2,538	179	852	311	21
Wheat (grain):								
United Kingdom	39,341	36,574	16,276	23,931	17,863	15,112	1,558	1,001
Netherlands	17,131	11,559	5,149	6,197	6,943	8,681	700	99
Italy	10,407	10,450	5,047	905	3,675	1,441	398	0
Belgium	8,926	8,797	3,232	6,314	7,394	10,707	2,372	171
Germany	7,287	5,582	1,674	4,769	1,722	3,530	263	0
France	16,079	5,127	2,215	2,214	7,859	6,148	1,121	38
Greece	4,816	2,819	3,592	7,009	3,379	11,149	3,149	0
Irish Free State	4,282	3,118	3,551	3,088	2,146	1,180	1,065	2,037
Other Europe	2,929	5,177	5,909	2,252	991	573	59	18
Total Europe	111,198	89,203	46,645	56,679	51,972	58,521	10,685	3,364
Canada	26,793	45,563	41,190	16,777	12,493	5,799	492	17
Japan	7,336	6,304	3,782	9,185	3,063	1,646	118	4,840
China	1,099	0	1,241	140	1,872	14,350	0	9,839
Other countries	9,824	4,929	10,256	9,394	6,965	16,205	[3] 9,592	739
Total	156,250	145,999	103,114	92,175	76,365	96,521	20,887	18,799
Wheat flour:	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*
Netherlands	1,568	1,530	1,084	1,031	1,297	178	138	83
United Kingdom	1,733	1,224	886	1,560	1,378	775	91	69
Germany	834	534	312	452	243	145	25	15
Greece	282	113	49	30	12	7	1	5
Irish Free State	94	62	39	145	155	117	69	51

[1] Preliminary. [2] Less than 500. [3] Includes 9,106,000 bushels to Brazil.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued.								
Grain and grain products—Contd.								
Wheat flour—Continued.	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*
Denmark	439	528	423	535	508	284	53	40
Finland	480	482	400	341	282	139	27	19
Norway	336	324	259	363	313	273	177	124
Other Europe	297	296	256	283	358	120	107	113
Total Europe	6,063	5,093	3,708	4,740	4,546	2,038	688	519
Cuba	1,199	1,216	1,204	1,199	968	871	738	809
Other West Indies[3]	747	676	809	663	590	550	436	216
Hong Kong	618	929	868	752	843	680	427	196
Brazil	904	873	831	780	671	113	61	32
China	418	790	1,242	553	955	1,740	133	491
Philippine Islands	666	727	802	730	640	630	562	380
Central America	613	697	752	684	658	596	503	471
Kwantung	189	136	428	891	382	96	30	45
Venezuela	175	201	248	295	254	242	166	186
Egypt	337	173	220	205	185	163	131	135
Other countries	1,456	1,310	1,776	1,502	1,034	638	449	393
Total	13,385	12,821	12,888	12,994	11,726	8,357	4,324	3,873
Hops:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	4,559	6,121	4,175	3,255	2,745	2,359	1,145	4,486
Belgium	1,892	255	129	93	77	37	41	247
Irish Free State	702	583	974	613	795	769	855	1,596
Other Europe	2,225	759	59	40	111	10	0	156
Total Europe	9,378	7,718	5,337	4,001	3,728	3,175	2,041	6,485
Canada	2,772	3,168	2,838	2,522	1,685	566	189	749
Other countries	1,219	926	661	270	180	76	201	354
Total	13,369	11,812	8,836	6,793	5,593	3,817	2,431	7,588
Oil cake and oil-cake meal:								
Cottonseed cake:[10]	*tons*	*tons*	*tons*	*tons*	*tons*	*tons*	*tons*	*tons*
Denmark	172,874	225,262	159,798	84,244	33,910	140,508	106,572	56,504
Germany	107,944	29,389	24,922	19,752	0	14,027	2,712	923
Other Europe	11,945	8,806	12,895	1,686	11	6,826	846	834
Total Europe	292,763	263,457	197,615	105,682	33,921	161,361	110,130	58,261
Other countries	6,961	55	14	101	1,459	89	50	67
Total	299,724	263,512	197,629	105,783	35,380	161,450	110,180	58,328
Cottonseed meal:[10]								
United Kingdom	75,350	22,922	30,042	23,478	1,648	15,090	4,130	2,334
Germany	63,844	19,579	23,156	9,876	0	9,474	18,028	73
Norway	14,373	5,828	5,096	510	56	10,528	5,012	616
Irish Free State	9,319	2,806	4,854	7,152	0	6,398	2,800	2,940
France	344	247	2,024	1,148	560	700	728	338
Netherlands	12,650	6,173	8,495	3,708	84	1,810	3,175	1,841
Belgium	4,202	2,180	3,946	1,630	506	1,607	3,170	1,381
Other Europe	228	3,644	3,757	1,572	(2)	2,039	2	108
Total Europe	180,310	63,379	81,370	49,074	2,854	47,646	37,045	9,631
Canada	11,089	4,843	6,478	13,174	4,272	4,388	2,214	4,506
Other countries	4,135	527	860	2,056	1,123	1,652	2,001	1,415
Total	195,534	68,749	88,708	64,304	8,249	53,686	41,260	15,552
Linseed or flaxseed cake:[10]								
Netherlands	190,552	152,660	185,693	161,768	70,752	103,094	57,381	136,287
Belgium	85,744	117,942	102,102	92,494	44,924	69,818	50,254	107,163
United Kingdom	22,761	19,349	20,196	24,373	21,248	10,864	1,129	16,137
Other Europe	5,640	4,576	4,052	21,058	7,654	27,378	4,316	2,957
Total Europe	304,697	294,527	312,043	299,693	144,578	211,154	113,080	262,544
Other countries	63	60	414	1,217	295	517	207	1,817
Total	304,760	294,587	312,457	300,910	144,873	211,671	113,287	264,361

[1] Preliminary. [2] Less than 500. [3] Excludes Bermudas. [10] Tons of 2,000 pounds each.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued								
Cottonseed oil:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canada	37,683	49,407	20,550	24,666	9,152	28,572	29,634	10,988
Mexico	3,868	5,318	2,374	947	3,954	450	2,062	563
Cuba	2,770	2,033	1,836	2,448	9,855	7,797	5,388	7,112
Argentina	2,160	1,108	912	253	94	3	22	0
Japan	925	831	911	1,179	1,146	1,602	3,543	2,261
Panama	742	719	788	1,063	768	900	1,007	801
Other countries	9,432	2,054	2,160	1,442	1,384	1,661	2,771	1,464
Total	57,580	61,470	29,531	31,998	26,353	40,985	44,427	23,189
Timothy seed:								
United Kingdom	2,774	2,928	668	1,841	2,054	2,428	1,365	1,356
Germany	2,336	2,942	352	226	391	483	179	0
Denmark	726	1,425	394	259	147	331	39	0
France	329	202	63	29	1	235	8	1
Netherlands	272	217	84	97	45	166	83	34
Belgium	117	137	22	18	22	130	0	0
Other Europe	175	454	306	445	67	54	136	11
Total Europe	6,729	8,305	1,889	2,915	2,727	3,827	1,810	1,402
Canada	7,111	8,838	6,502	8,868	10,637	9,768	3,354	3,709
New Zealand	187	440	194	252	171	277	263	210
Other countries	33	95	51	76	60	76	54	58
Total	14,060	17,678	8,636	12,111	13,595	13,948	5,481	5,379
Sugar, refined:[10]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
United Kingdom	37,069	35,460	23,507	25,224	23,111	23,613	21,480	30,210
Norway	14,912	12,579	14,389	5,733	1,735	2,612	3,072	4,055
France	4,523	1,050	1,526	1,347	1,636	569	586	535
Netherlands	2,772	4,338	4,839	5,435	4,689	4,341	4,616	4,448
Denmark	206	192	829	1,013	1,445	1,366	325	445
Belgium	[11]	421	493	491	686	610	798	656
Other Europe	7,200	6,567	780	435	385	767	1,634	2,604
Total	66,682	60,607	46,363	39,678	33,687	33,878	32,511	42,953
Uruguay	18,748	12,692	25,647	5,966	6,643	2,590	89	2,911
West Indies and Bermudas	3,970	4,816	5,587	4,962	5,331	3,644	2,099	2,391
British Africa	5,565	4,921	12,147	6,474	6,110	3,793	478	794
Canada	1,892	3,711	6,501	3,637	2,295	1,222	592	1,147
Mexico	3,898	1,703	4,818	4,324	747	236	244	224
Panama	2,089	2,000	2,439	3,146	3,958	5,041	3,234	3,548
Newfoundland and Labrador	509	620	2,342	301	2,331	1,501	455	3,179
Colombia	1,962	6,812	13,396	6,107	4,740	292	84	75
New Zealand	0	2	4	1,080	1,428	225	[11]	262
Philippine Islands	234	251	744	755	874	513	272	124
Chile	2,043	1,876	2,368	627	278	94	1	146
Other countries	6,692	5,545	5,521	1,565	1,796	1,044	653	1,979
Total	114,084	105,556	127,877	78,622	70,218	54,073	40,712	59,733
Tobacco, leaf:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Flue-cured:								
United Kingdom	134,886	157,506	171,515	186,583	184,448	129,399	131,807	170,507
Germany	11,105	13,378	13,841	8,150	12,274	7,610	4,052	7,838
Netherlands	6,941	8,367	9,392	7,267	7,624	9,688	4,812	11,548
Belgium	1,037	2,758	3,927	2,190	3,589	3,229	2,679	3,209
Other Europe	9,775	10,072	11,878	30,475	16,959	12,205	8,872	12,274
Total Europe	163,744	192,081	210,553	234,665	224,894	162,131	152,222	205,376
China[12]	71,760	68,842	131,254	128,144	143,989	77,433	76,607	87,029
Australia	19,307	21,488	18,146	19,492	23,173	11,007	8,693	10,841
Canada	11,984	14,049	14,601	13,660	11,210	10,680	7,487	7,949
Japan	8,563	11,555	14,564	10,395	11,604	4,128	4,735	7,753
British India	4,538	5,031	5,884	3,874	1,162	3,721	3,293	2,236
Other countries	8,785	15,878	18,947	19,712	16,656	16,388	16,625	9,128
Total	288,671	328,924	413,949	429,942	432,688	285,488	269,662	330,312

[1] Preliminary.
[10] Tons of 2,000 pounds each.
[11] Less than ½ ton.
[12] Includes Hong Kong and Kwantung.

TABLE 449.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country to which exported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—continued.								
Tobacco, leaf—Continued:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Burley:								
Belgium	6,086	2,151	2,245	3,362	3,085	3,842	4,319	3,819
Germany	1,053	885	152	159	442	530	488	540
Italy	224	445	6	20	373	496	285	465
Netherlands	2,978	511	143	168	232	1,067	694	2,218
Portugal	2,130	1,986	1,539	2,969	1,363	1,262	1,612	2,242
Sweden	50	0	5	193	0	61	88	406
United Kingdom	351	862	118	391	776	320	66	230
Other Europe	630	517	286	333	843	966	1,262	1,208
Total Europe	13,502	7,357	4,494	7,595	7,114	8,544	8,814	11,128
Newfoundland and Labrador	138	297	306	326	185	203	115	327
Australia	42	230	609	510	246	268	388	271
Argentina	0	8	6	4	45	67	28	154
Other countries	3,427	1,125	821	819	887	833	708	680
Total	17,109	9,017	6,236	9,254	8,477	9,915	10,053	12,560
Black fat, waterbaler, and dark African:								
British West Africa	[7] 102	343	1,321	3,740	2,634	6,044	4,360	4,249
French Africa	[7] 69	119	1,409	1,993	2,511	2,720	2,099	2,118
Portuguese Africa	[7] 3	3	55	90	172	545	358	476
Spanish Africa	[7] 8	44	95	222	152	284	299	360
Germany	[7] 0	4	118	272	80	124	301	465
Other countries	[7] 72	391	633	907	2,007	747	810	1,053
Total	[7] 254	904	3,631	7,224	7,556	10,464	8,227	8,721
Dark-fired Kentucky and Tennessee:								
France	23,076	14,516	15,608	37,129	18,844	28,148	24,456	20,333
Spain	19,365	11,275	4,110	2,448	2,011	5,791	4,155	17,630
Belgium	19,894	7,383	5,894	4,673	8,028	9,102	8,815	11,004
United Kingdom	11,919	8,999	6,861	6,906	5,291	5,621	4,514	2,254
Germany	13,937	8,568	10,353	8,329	9,677	7,602	7,353	6,078
Netherlands	13,541	9,246	9,671	11,907	12,821	5,074	2,434	2,902
Poland and Danzig	1,866	3,041	3,004	4,509	3,347	2,330	2,187	709
Switzerland	2,989	931	1,500	1,357	2,551	1,468	1,205	3,300
Argentina	3,176	2,197	2,676	2,130	2,547	2,123	1,017	563
British West Africa	4,794	5,451	4,757	3,029	886	204	96	67
French Africa	4,041	4,363	2,554	3,254	1,366	1,223	685	841
Mexico	1,315	557	823	506	837	54	21	25
Other countries	14,585	10,645	11,493	10,210	14,100	11,451	6,714	10,151
Total	134,498	87,172	79,304	96,387	82,306	80,191	63,652	75,857
Dark Virginia:								
France	1,627	1,241	1,698	651	150	0	0	0
Germany	3,842	3,645	2,560	2,156	3,277	1,783	2,164	1,101
Netherlands	2,382	1,976	1,206	1,242	780	1,887	1,572	1,783
Norway	2,150	1,742	2,679	1,358	1,824	1,576	1,559	1,656
Portugal	1,030	760	769	523	277	239	89	559
United Kingdom	1,521	1,399	1,752	2,797	1,068	2,284	609	1,156
Belgium	740	1,195	2,276	402	679	1,687	1,301	1,108
Other Europe	668	5,453	6,910	5,103	2,695	1,993	3,344	3,040
Total Europe	13,960	17,411	19,850	14,232	10,750	11,449	10,638	10,403
Canada	152	226	284	210	240	35	109	23
China [12]	1,733	111	110	179	107	0	0	20
Australia	2,422	1,660	721	1,642	1,020	488	366	374
British West Africa	266	344	422	572	123	19	31	146
Other countries	1,492	1,067	1,484	1,842	1,109	1,100	1,380	1,406
Total	20,025	20,819	22,871	18,677	13,349	13,091	12,524	12,372
Maryland and Ohio export:								
Netherlands	4,239	6,103	2,052	1,157	797	665	2,916	3,973
France	7,237	4,269	6,545	2,372	4,917	3,244	3,074	1,755
Belgium	704	890	649	725	1,003	837	1,263	1,278
Switzerland	1,107	1,179	1,995	1,585	1,707	1,841	1,510	2,023
Germany	653	870	321	484	209	95	236	624
Other Europe	1,416	1,348	396	491	1,066	461	591	430
Total Europe	15,356	14,659	11,928	6,814	9,699	7,143	9,590	10,083
Other countries	1,029	496	773	1,173	614	187	400	441
Total	16,385	15,155	12,701	7,987	10,313	7,330	9,990	10,524

[1] Preliminary. [7] Six months, January-June. [12] Includes Hong Kong and Kwantung.

Bureau of Agricultural Economics, Foreign Agricultural Service Division. Compiled from Monthly Summary of Foreign Commerce of the United States, January and June issues, 1927–32, and official records of the Bureau of Foreign and Domestic Commerce.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
ANIMALS AND ANIMAL PRODUCTS								
Cattle:	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Mexico	99	204	309	226	56	79	92	61
Canada	168	343	256	192	26	24	8	6
Virgin Islands	1	1	1	2	3	3	2	2
Other countries	0	1	1	1	1	(2)	(2)	(2)
Total	268	549	567	421	86	106	102	69
Butter:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	3,932	870	58	171	17	38	129	60
Denmark	1,529	761	902	1,109	172	210	124	193
Other Europe	192	453	279	38	26	34	106	121
Total Europe	5,653	2,084	1,239	1,318	215	282	359	374
New Zealand	3,682	2,396	1,674	1,141	877	729	547	330
Canada	610	275	237	142	162	709	64	47
Other countries	765	200	149	250	75	118	21	12
Total	10,710	4,955	3,299	2,851	1,329	1,838	991	763
Cheese, Emmenthaler (Swiss):[3]								
Switzerland				[4] 934	13,571	11,211	10,492	6,005
Denmark				[4] 40	594	661	518	566
Germany				[4] 48	497	813	420	204
Other countries				[4] 120	1,110	883	874	1,212
Total				[4] 1,142	15,772	13,568	12,304	7,987
Cheese, other than Swiss:[5]								
Italy	36,572	31,332	38,337	36,958	29,307	30,296	30,398	26,083
France	4,923	5,874	6,243	6,035	3,860	4,333	3,775	3,079
Netherlands	3,687	3,736	3,525	2,915	2,334	2,435	2,177	1,709
Switzerland	20,638	16,449	19,731	16,452	3,607	1,463	1,516	1,236
Other Europe	6,634	5,983	6,052	8,469	1,994	3,145	3,936	4,618
Total Europe	72,454	63,374	73,888	70,829	41,102	41,672	41,802	36,725
Canada	16,609	11,439	9,381	5,895	818	1,366	1,109	1,165
Other countries	719	611	1,337	396	280	629	708	1,027
Total	89,782	75,424	84,606	77,120	42,200	43,667	43,619	38,917
Eggs in the shell:	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*
Hong Kong	219	199	236	250	263	248	206	171
China	6	40	28	15	19	20	14	13
Canada	54	13	13	60	15	13	6	5
Other countries	17	4	14	12	4	1	36	9
Total	296	256	291	337	301	282	262	198
Eggs and egg yolks, dried, frozen and preserved:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
China	14,825	5,409	20,582	18,206	7,918	2,745	2,016	2,204
United Kingdom	3,357	248	3,285	4,498	76	84	0	0
Other countries	133	244	593	253	62	79	1	2
Total	18,315	5,901	24,460	22,957	8,056	2,908	2,017	2,206
Egg albumen:								
China	6,907	2,836	3,431	4,868	2,208	1,654	1,424	355
Other countries	919	78	77	450	13	68	(2)	6
Total	7,826	2,914	3,508	5,318	2,221	1,722	1,424	361

[1] Preliminary. Imports for consumption.
[2] Less than 500.
[3] Included with "cheese, other than Swiss" prior to June 18, 1930.
[4] June 18 to June 30.
[5] Includes "Swiss cheese" prior to June 18, 1930.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
ANIMALS AND ANIMAL PRODUCTS—continued								
Meats canned:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Uruguay	14,438	16,903	31,262	36,442	8,893	11,872	16,430	20,726
Argentina	17,425	18,718	40,870	42,640	9,013	7,448	12,326	17,726
Paraguay	378	2,352	3,400	2,274	1,401	399	1,588	1,021
Japan	95	421	165	158	78	95	91	57
Other countries	1,183	1,960	2,086	1,124	429	382	167	119
Total	33,519	40,354	77,783	82,638	19,814	20,196	30,602	39,649
Silk, raw, in skeins reeled from cocoon:								
Japan	59,934	64,673	63,415	61,243	67,309	69,423	67,098	58,806
China	11,872	9,816	12,326	12,717	10,432	5,258	3,072	3,087
Other countries	1,596	1,269	1,455	3,733	4,038	3,168	3,254	1,416
Total	73,402	75,758	77,196	77,693	81,779	77,849	73,424	63,309
Wool, unmanufactured:								
Carpet wool:								
United Kingdom	51,602	32,423	33,861	23,326	14,085	9,159	9,435	16,806
China	36,362	55,998	53,589	36,931	33,603	18,720	7,773	44,800
Argentina	9,513	8,924	19,820	24,405	25,567	20,428	11,827	34,039
British India	6,906	10,811	14,390	11,106	5,163	9,430	4,309	14,942
Palestine and Syria	8,064	8,420	3,953	10,460	4,388	3,970	1,186	2,155
Iraq	4,115	6,550	6,349	7,481	4,210	6,037	1,685	3,077
Egypt	1,650	2,191	3,765	3,714	2,351	2,022	1,769	3,662
Italy	4,532	4,056	3,668	3,053	2,772	2,627	1,312	3,766
Irish Free State	1,729	1,580	2,134	2,126	490	1,427	1,354	2,221
Germany	2,876	2,814	3,260	3,250	2,622	1,828	1,299	3,680
France	5,371	5,414	4,470	4,260	1,814	1,078	401	1,486
Switzerland	2,132	1,515	1,509	1,506	1,173	1,002	55	76
Other countries	9,846	4,793	13,945	9,493	5,023	3,731	1,614	4,269
Total	144,698	145,489	164,713	141,111	103,261	81,459	44,019	134,979
Clothing wool:								
United Kingdom	4,775	4,169	2,499	1,807	1,800	1,084	516	2,308
Australia	3,797	5,515	5,936	5,690	2,871	3,489	285	2,579
Canada	2,353	2,838	1,601	1,129	312	75	25	653
Argentina	2,843	2,545	1,872	2,300	354	96	3	259
Chile	1,186	1,677	1,625	1,094	361	1	0	396
New Zealand	662	1,670	2,081	3,514	366	1,411	46	582
Uruguay	497	213	1,062	1,275	143	23	0	44
Other countries	657	747	1,732	2,047	352	1,032	149	589
Total	16,770	19,374	18,408	18,856	6,559	7,211	1,024	7,320
Combing wool:								
United Kingdom	15,484	17,344	12,319	8,784	2,933	2,114	2,423	6,433
Australia	38,714	21,992	17,906	14,911	22,018	9,636	2,243	9,282
Argentina	15,265	11,424	12,875	10,674	1,898	193	(2)	3,319
Uruguay	17,751	6,962	20,341	11,815	4,553	583	282	3,846
New Zealand	5,192	8,260	8,577	3,093	2,065	413	851	3,427
Union of South Africa	4,488	4,566	2,913	925	2,715	1,172	149	899
Canada	3,599	6,122	5,314	5,057	396	926	677	5,253
Other countries	2,415	3,612	3,233	3,215	2,150	93	43	527
Total	102,908	80,282	83,478	58,474	38,728	15,130	6,668	32,986
Hair of the Angora goat (mohair), alpaca:								
United Kingdom	792	541	384	391	350	50	318	221
Turkey (Europe and Asia)	3,237	983	2,034	553	9	0	0	732
British South Africa	2,505	660	884	370	407	0	98	347
Peru	82	425	716	622	149	50	147	302
China	74	184	145	48	26	27	0	3
Other countries	62	97	175	52	58	14	30	96
Total	6,752	2,890	4,338	2,036	999	141	593	1,701

[1] Preliminary. Imports for consumption.
[2] Less than 500.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
ANIMALS AND ANIMAL PRODUCTS—continued								
Sausage casings:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Germany	1,904	1,353	2,599	1,813	763	850	582	418
Argentina	4,804	4,975	5,719	5,459	3,897	3,373	3,648	4,975
Canada	3,351	3,928	2,989	2,218	1,808	2,199	1,938	1,837
Australia	2,198	2,213	2,597	3,024	1,638	1,457	1,286	1,456
China	2,074	1,640	1,445	1,256	918	655	463	713
New Zealand	901	1,223	1,086	1,470	798	1,087	1,250	2,242
Uruguay	876	917	1,317	1,527	736	497	664	963
Chile	454	260	859	648	404	522	386	528
U. S. S. R. (Russia in Europe)	633	665	951	1,300	496	500	650	341
Turkey (Asia and Europe)	213	235	268	224	353	251	295	445
Other countries	1,436	2,136	2,210	2,617	1,544	1,835	1,725	2,135
Total	18,844	19,545	22,040	21,556	13,355	13,226	12,887	16,053
VEGETABLE PRODUCTS								
Cocoa or cacao beans:								
British West Africa	164,338	133,963	146,739	145,400	151,524	131,720	167,660	191,223
Brazil	81,148	100,262	87,338	95,516	75,726	142,284	173,894	130,336
Dominican Republic	51,084	39,591	50,353	41,120	37,898	54,412	38,244	49,239
British West Indies and Bermudas	31,247	38,217	41,933	39,276	41,805	21,240	27,084	14,640
Venezuela	13,207	14,482	18,008	19,302	17,338	13,936	23,451	18,794
Germany	15,797	29,074	17,424	8,565	11,506	8,347	725	718
United Kingdom	15,644	9,234	10,612	12,790	16,429	12,103	1,645	1,917
Netherlands	13,133	11,502	6,074	5,528	9,990	4,289	125	861
Ecuador	13,710	19,210	16,939	14,754	13,170	11,920	9,586	11,399
French Africa	220	0	44	8,741	12,308	7,282	10,518	21,484
Panama	4,899	3,861	9,148	7,693	10,080	13,451	10,769	11,046
Other countries	20,757	12,147	14,631	23,253	17,668	13,869	12,720	14,174
Total	425,184	411,543	419,243	421,938	415,442	434,853	476,421	465,831
Coffee:								
Brazil	1,000,721	1,059,742	933,056	1,011,430	1,196,881	1,158,566	809,530	1,075,417
Colombia	313,590	261,678	263,236	351,333	330,379	334,105	376,555	354,960
Central America	40,070	64,443	54,774	56,763	53,276	31,923	75,246	54,621
Venezuela	43,436	53,072	64,621	55,710	60,378	45,849	40,586	30,483
Other countries	47,030	96,457	119,383	86,822	87,655	58,398	156,244	82,626
Total	1,444,847	1,535,392	1,435,070	1,562,058	1,728,569	1,628,841	1,458,161	1,598,107
Fibers:								
Cotton, raw:[6]	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*
Egypt	213,975	197,868	282,442	181,740	21,688	66,313	52,640	101,952
China	30,408	67,203	38,816	46,206	31,135	9,092	50,595	21,583
British India	19,330	26,081	53,842	59,200	34,577	21,865	3,833	27,167
Mexico	97,384	24,076	54,402	40,702	14,238	21,921	223	1,536
Peru	18,097	19,133	18,066	19,144	1,623	3,757	4,889	1,736
Other countries	20,311	32,689	28,277	66,517	3,837	15,746	20,406	3,351
Total	399,505	367,050	475,845	413,509	107,098	138,694	132,586	157,325
Flax, unmanufactured:[7]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Latvia	898	1,520	2,176	2,231	1,926	1,836	18	14
United Kingdom	1,231	1,800	1,758	1,768	383	487	415	952
U. S. S. R. (Russia in Europe)	642	149	294	1,127	155	62	2,047	2,521
Belgium	446	739	757	810	536	157	217	1,583
Netherlands	287	253	208	231	154	67	12	92
Other Europe	790	726	283	695	275	1,077	184	354
Total Europe	4,294	5,187	5,476	6,862	3,429	3,686	2,893	5,516
Canada	45	126	72	97	137	233	194	173
Other countries	366	124	102	54	32	0	0	0
Total	4,705	5,437	5,650	7,013	3,598	3,919	3,087	5,689

[1] Preliminary. Imports for consumption.
[6] Bales of 478 pounds net.
[7] Tons of 2,240 pounds.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—con.								
Fibers, Continued:								
Manila fiber:[7]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Philippine Islands	60,381	46,967	59,832	70,813	42,569	26,532	24,870	42,387
Other countries	249	1,051	472	2,035	635	202	301	434
Total	60,630	48,018	60,304	72,848	43,204	26,734	25,171	42,821
Sisal and henequen:[7]								
Mexico	82,008	92,534	95,080	57,098	38,463	71,428	105,353	65,470
Netherlands Indies	18,870	16,433	20,037	30,450	24,754	14,915	38,137	36,888
Cuba	2,770	1,849	2,186	3,402	4,181	2,065	3,933	2,467
Netherlands	238	1,973	2,216	3,161	2,595	5,219	0	0
United Kingdom	297	234	1,686	1,583	7,264	7,922	55	82
Other countries	11,968	11,181	14,146	16,814	6,675	7,243	18,488	11,004
Total	116,151	124,204	135,351	112,508	83,932	108,792	165,966	115,911
Fruits:								
Dried:								
Cherries, dried or prepared:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Italy	15,112	325	107	76	512	(2)	3	3
France	616	573	227	743	158	146	96	63
Other countries	246	66	50	47	[8] 610	2	(2)	1
Total	15,974	964	384	866	1,280	148	99	67
Currants:								
Greece	12,714	10,800	9,178	9,950	8,594	6,652	6,543	5,951
Other Europe	199	56	108	13	0	0	0	0
Total Europe	12,913	10,856	9,286	9,963	8,594	6,652	6,543	5,951
Other countries	98	178	96	92	16	11	62	40
Total	13,011	11,034	9,382	10,055	8,610	6,663	6,605	5,991
Dates:								
Iraq	10,161	34,700	45,373	48,804	34,418	33,492	30,504	22,783
United Kingdom	3,413	6,987	3,085	1,350	5,544	6,652	16,368	6,819
Arabia	32,828	694	476	703	990	153	284	10,647
Other countries	3,032	1,747	5,153	2,393	1,476	3,604	666	2,039
Total	49,434	44,128	54,087	53,250	42,428	43,901	47,822	42,288
Figs:								
Turkey (Asia and Europe)	22,270	16,566	22,418	12,784	9,998	6,249	4,299	4,862
Portugal	2,786	5,933	4,404	934	843	397	30	121
Greece	6,842	2,465	4,910	6,084	2,933	1,181	969	963
Italy	3,305	1,943	1,358	641	1,018	780	709	796
Other countries	4,301	4,552	2,473	1,474	33	88	31	57
Total	39,504	31,459	35,563	21,917	14,825	8,695	6,038	6,799
Fresh:								
Avocados:[9]								
Cuba	5,261	2,169	4,612	6,598	9,544	10,190	8,681	5,263
Other countries	115	161	139	146	2	4	0	(2)
Total	5,376	2,330	4,751	6,744	9,546	10,194	8,681	5,263
Bananas:	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*
Central America	32,208	39,676	42,386	42,764	36,818	33,698	31,636	28,938
Jamaica	13,861	13,398	11,722	11,513	11,010	7,905	2,368	264
Mexico	5,928	6,511	4,481	6,200	5,520	4,957	5,644	7,705
Cuba	2,905	2,730	3,467	4,149	3,562	3,163	2,668	3,814
Colombia	2,073	1,695	1,439	1,171	909	1,970	2,714	1,752
Other countries	127	19	35	112	22	92	84	623
Total	57,102	64,029	63,530	65,909	57,841	51,785	45,114	43,096

[1] Preliminary. Imports for consumption.
[2] Less than 500.
[7] Tons of 2,240 pounds.
[8] Yugoslavia.
[9] Compiled from Report of the Federal Horticultural Board, 1927 and 1928, Report of the Plant Quarantine and Control Administration, 1929 and 1930, and official records of the Bureau of Foreign and Domestic Commerce.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—con.								
Fruits—Continued.								
Fresh—Continued.								
Cherries, natural, sulphured, or in brine:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Italy	5,169	12,009	12,365	20,327	7,528	4,446	871	749
France	2	2,465	200	1,346	85	351	2	0
Yugoslavia[10]	0	354	266	410	253	1,106	788	901
Canada	543	56	140	279	60	31	19	30
Other countries	19	252	202	(2)	0	9	22	4
Total	5,733	15,136	13,173	22,362	7,926	5,943	1,702	1,684
Lemons:[11]	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
Italy	654	1,300	382	1,217	342	159	146	47
Other Europe	5	4	8	10	8	17	(2)	0
Total Europe	659	1,304	390	1,227	350	176	146	47
Other countries	0	4	1	2	0	(2)	(2)	(2)
Total	659	1,308	391	1,229	350	176	146	47
Olives, in brine:	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*
Spain	4,664	5,739	6,209	7,746	6,649	6,003	3,984	5,085
Greece	96	144	204	308	625	666	586	566
Other Europe	425	532	496	357	144	367	92	147
Total Europe	5,185	6,415	6,909	8,411	7,418	7,036	4,662	5,798
Other countries	27	43	46	41	11	21	13	8
Total	5,212	6,458	6,955	8,452	7,429	7,057	4,675	5,806
Grains, flours, etc.:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Barley malt:								
Canada					22,369	34,551	50,515	129,936
Czechoslovakia					657	131	1,209	9,835
Germany					347	492	334	8,543
Hungary					(2)	0	0	8,954
Mexico					0	0	0	3,354
Other countries					34	3	341	8,573
Total	[12] 895	[12] 828	[12] 962	[12] 1,006	23,407	35,177	52,399	169,195
Rice, cleaned, excluding patna:								
Hong Kong	19,741	20,786	17,934	15,094	15,878	11,011	8,777	7,639
Mexico	8,002	1,264	1,022	1,259	2,700	1,608	5,009	1,613
Italy	3,695	3,971	1,032	1,310	1,391	1,072	970	846
Netherlands	5,837	2,139	271	1,622	2,419	1,233	292	1
British India	465	1,061	2,380	243	1,059	724	1,022	349
Germany	3,768	1,077	396	489	2,367	468	84	155
Siam	2,912	448	1	0	0	0	0	5
Philippine Islands	278	168	1	5	202	2	10	2,831
Other countries	9,668	2,928	2,130	929	812	1,041	1,429	1,740
Total	54,366	33,842	25,167	20,951	26,828	17,159	17,593	15,179
Rice, patna:								
Netherlands	[13] 1,215	1,826	2,329	2,010	2,051	1,035	510	998
British India	0	0	0	0	0	10	321	300
Other countries	[13] 6	0	0	166	65	42	15	167
Total	[13] 1,221	1,826	2,329	2,176	2,116	1,087	846	1,465
Rice, uncleaned:								
Mexico	7,802	3,036	5,904	4,181	0	0	71	0
Japan	3,213	2,316	1,441	1,492	5,011	1,468	1,505	2,237
British India	224	428	325	694	419	55	20	825
British Guiana	0	40	66	423	656	106	0	20
Philippine Islands	44	0	0	0	50	0	(2)	231
Other countries	489	176	324	215	76	55	4	4
Total	11,772	5,996	8,060	7,005	6,212	1,684	1,600	3,317

[1] Preliminary. Imports for consumption.
[2] Less than 500.
[10] Includes Albania prior to Jan. 1, 1932.
[11] Boxes of 74 pounds net.
[12] Imports for consumption. Not available by countries.
[13] January-June.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—con.								
Grains, flours, etc.—Continued	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Rice, flour, and meal:								
Mexico	2,307	1,981	508	340	0	0	0	2,756
Japan	469	442	504	472	426	352	408	418
Hong Kong	96	100	62	86	60	123	86	88
China	36	38	68	51	24	36	26	38
France	3	3	5	7	30	26	14	234
British India	0	0	0	0	0	0	67	1,304
Germany	[2]	10	15	[2]	[2]	[2]	344	3,083
Siam	0	0	0	0	0	0	0	1,592
Netherlands	0	21	0	100	0	0	660	10,472
Other countries	61	11	77	29	63	19	34	1,958
Total	2,972	2,606	1,239	1,085	603	556	1,639	21,943
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Wheat:								
Canada	13,234	15,706	21,429	12,948	19,053	12,885	9,379	11,482
Other countries	1	0	1	0	1	[2]	[2]	8
Total	13,235	15,706	21,430	12,948	19,054	12,885	9,379	11,490
	Barrels	*Barrels*	*Barrels*	*Barrels*	*Barrels*	*Barrels*	*Barrels*	*Barrels*
Wheat flour:								
Canada	5,344	3,474	2,273	889	630	145	560	770
United Kingdom	474	49	45	651	363	43	44	[2]
Other countries	238	2,206	285	163	169	84	77	56
Total	6,056	5,729	2,603	1,703	1,162	272	681	826
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Nuts:								
Almonds, shelled:								
Spain	8,389	9,637	10,399	8,902	6,432	4,830	3,386	2,600
Italy	6,076	7,703	6,578	8,912	6,348	3,287	1,321	632
France	541	306	286	136	223	163	53	101
Other Europe	165	197	273	118	61	5	1	6
Total Europe	15,171	17,843	17,536	18,068	13,064	8,285	4,761	3,339
Other countries	528	414	570	236	177	51	102	71
Total	15,699	18,257	18,106	18,304	13,241	8,336	4,863	3,410
Almonds, not shelled:								
Spain	158	229	1,068	4,530	3	1	141	0
Italy	180	98	73	375	18	7	1	5
France	154	131	474	518	54	0	0	0
Other Europe	7	5	267	61	0	0	[2]	0
Total Europe	499	463	1,882	5,484	75	8	142	5
Other countries	139	1	9	19	3	1	2	1
Total	638	464	1,891	5,503	78	9	144	6
Brazil, shelled: [14]								
Brazil	----------	----------	[13] 224	1,586	2,529	3,540	4,856	6,719
United Kingdom	----------	----------	[13] 808	2,500	645	978	415	129
Other countries	----------	----------	[13] 28	4	0	0	25	172
Total	----------	----------	[13] 1,060	4,090	3,174	7,518	5,296	7,020
Brazil, not shelled: [15]								
Brazil	41,999	12,575	32,713	18,820	20,684	15,736	16,521	16,347
United Kingdom	341	771	2,913	197	2,022	740	941	446
Other countries	517	93	151	62	24	10	0	0
Total	42,857	13,439	35,777	19,079	22,730	16,486	17,462	16,793
Cashew nuts: [16]								
British India	----------	----------	----------	[13] 3,277	7,178	12,948	7,057	13,741
France	----------	----------	----------	[13] 184	21	38	0	3
Haiti, Republic of	----------	----------	----------	[13] 4	110	43	3	32
Other countries	----------	----------	----------	[13] 69	128	137	91	293
Total	----------	----------	----------	[13] 3,534	7,437	13,166	7,151	14,069

[1] Preliminary. Imports for consumption.
[2] Less than 500.
[13] January–June.
[14] Included with "not shelled" prior to Jan. 1, 1929.
[15] Includes "shelled" prior to Jan. 1, 1929.
[16] Included with "other edible nuts" prior to Jan. 1, 1930.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—con.								
Nuts—Continued.	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Filberts, shelled:								
France	1,014	1,206	1,027	178	334	91	52	27
Italy	732	348	746	752	345	335	312	193
Spain	421	329	1,764	2,888	37	428	240	357
Germany	277	22	175	49	334	0	0	0
Other Europe	281	77	63	25	118	74	16	1
Total Europe	2,725	1,982	3,775	3,892	1,168	928	620	578
Turkey (Asia and Europe)	2,133	4,618	1,800	609	3,417	1,422	2,686	1,448
Other countries	92	0	31	2	11	0	0	0
Total	4,950	6,600	5,606	4,503	4,596	2,350	3,306	2,026
Filberts, not shelled:								
Italy	9,296	6,687	11,053	4,548	3,987	6,293	5,717	1,637
Spain	49	1,936	818	954	423	73	83	583
Other Europe	291	1,334	243	254	229	11	0	91
Total Europe	9,636	9,957	12,114	5,756	4,639	6,377	5,800	2,311
Turkey (Asia and Europe)	54	1,265	20	0	820	0	0	240
Other countries	132	22	0	0	200	0	0	0
Total	9,822	11,244	12,134	5,756	5,659	6,377	5,800	2,551
Peanuts, shelled:								
China	44,729	49,986	23,987	7,140	4,989	341	1	5
Kwantung	962	1,533	1,682	544	394	25	0	0
Japan	267	110	330	3	2	1	100	1
Hong Kong	15	13	58	9	22	20	8	12
Philippine Islands	0	0	0	351	1,075	382	0	241
Other countries	879	3,142	549	305	23	1	0	1
Total	46,852	54,784	26,606	8,352	6,505	770	109	260
Peanuts, not shelled:								
China	3,812	12,339	4,680	2,445	3,483	724	24	12
Japan	245	509	360	212	343	156	96	118
Hong Kong	50	58	108	67	126	188	75	79
Kwantung	0	100	200	110	255	80	0	0
Other countries	303	492	361	76	76	1	0	1
Total	4,410	13,498	5,709	2,910	4,283	1,149	195	210
Walnuts, shelled:								
France	8,995	12,551	9,308	11,357	4,679	5,094	2,729	1,595
Other Europe	3,007	989	2,033	722	2,090	1,245	847	386
Total Europe	12,002	13,540	11,341	12,079	6,769	6,339	3,576	1,981
China	8,144	1,952	5,052	4,364	8,216	4,129	1,768	2,969
Other countries	833	523	1,563	835	1,341	263	434	597
Total	20,979	16,015	17,956	17,278	16,326	10,731	5,778	5,547
Walnuts, not shelled:								
Italy	12,082	4,558	4,501	4,620	2,356	4,099	1,802	71
France	3,566	2,244	2,720	831	477	1,201	80	39
Other Europe	3,004	144	3,336	117	99	68	2	6
Total Europe	18,652	6,946	10,557	5,568	2,932	5,368	1,884	116
China	5,870	2,531	4,575	1,419	504	81	42	[2]
Other countries	1,184	837	449	37	116	53	409	205
Total	25,706	10,314	15,581	7,024	3,552	5,502	2,335	321

[1] Preliminary. Imports for consumption.
[2] Less than 500.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—con.								
Oils, vegetable:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Coconut, product of Philippine Islands	286, 776	273, 309	377, 288	370, 600	315, 942	297, 083	260, 700	353, 105
Olive, edible:								
Italy	58, 706	45, 145	62, 202	71, 265	45, 661	47, 116	45, 841	32, 926
Spain	21, 682	17, 797	16, 910	20, 909	23, 675	27, 823	21, 712	21, 379
France	4, 705	5, 335	6, 182	2, 959	2, 335	2, 395	1, 920	2, 350
Other Europe	1, 300	954	1, 527	710	542	204	1, 556	610
Total Europe	86, 393	69, 231	86, 821	95, 843	72, 213	77, 538	71, 029	57, 265
Other countries	1, 529	899	1, 297	2, 603	1, 581	1, 151	1, 336	168
Total	87, 922	70, 130	88, 118	98, 446	73, 794	78, 689	72, 365	57, 433
Olive, inedible:								
Italy	32, 124	29, 244	35, 889	33, 992	27, 364	28, 831	19, 096	17, 863
Spain	10, 882	12, 333	9, 575	16, 518	13, 987	20, 352	10, 847	9, 173
Greece	2, 206	2, 783	6, 856	346	2, 579	3, 030	11, 329	8, 039
Portugal	783	1, 675	2, 122	425	1, 038	1, 445	1, 625	1, 122
Other Europe	576	525	325	1, 817	25	741	50	3
Total Europe	46, 571	46, 560	54, 767	53, 098	44, 993	54, 399	42, 947	36, 200
Algeria and Tunisia	206	1, 296	4, 103	6, 877	6, 753	4, 110	9, 527	10, 315
Other countries	30	107	807	198	666	359	319	0
Total	46, 807	47, 963	59, 677	60, 173	52, 412	58, 868	52, 793	46, 515
Palm oil:								
Netherlands Indies	10, 493	22, 855	33, 655	58, 738	84, 429	91, 516	145, 694	137, 061
British West Africa	50, 762	97, 043	122, 315	118, 368	151, 726	83, 305	63, 840	40, 336
Belgian Congo	17, 187	26, 406	36, 949	31, 655	54, 882	32, 769	38, 229	45, 674
British Malaya	2, 077	1, 002	1, 997	3, 148	3, 950	1, 699	2, 034	7, 144
Other countries	29, 665	36, 671	33, 314	25, 951	18, 953	11, 866	3, 841	18, 241
Total	110, 184	183, 977	228, 230	237, 860	313, 940	221, 155	253, 638	248, 456
Soybean:								
Kwantung	15, 759	13, 546	11, 089	12, 867	5, 769	2, 358	0	2, 466
China	1, 803	891	1, 520	0	0	723	0	0
Japan	4, 033	41	1, 729	121	1	[2]	0	45
Other countries	1, 958	84	2, 834	344	145	4	1	1
Total	23, 553	14, 562	17, 172	13, 332	5, 915	3, 085	1	2, 512
Tung oil:								
China	89, 255	75, 141	101, 256	124, 996	95, 927	74, 995	81, 779	110, 364
Hong Kong	12, 223	7, 367	13, 205	5, 828	3, 475	6, 171	2, 029	11, 527
Other countries	950	1, 120	779	117	0	180	50	6
Total	102, 428	83, 628	115, 240	130, 941	99, 402	81, 346	83, 858	121, 897
Oilseeds:								
Copra, not prepared:								
Philippine Islands	330, 946	336, 920	386, 567	299, 193	311, 781	229, 346	244, 246	499, 057
Netherlands Indies	10, 579	5, 867	27, 144	29, 206	76, 495	88, 309	168, 683	100, 311
British Malaya	59, 746	40, 381	84, 700	42, 114	57, 619	64, 660	34, 590	37, 966
British Oceania	19, 131	19, 941	37, 685	43, 778	48, 774	25, 861	26, 082	12, 429
French Oceania	29, 188	25, 273	21, 306	22, 662	21, 482	12, 791	16, 166	2, 716
Australia	37	17, 445	55, 988	35, 455	30, 077	13, 096	0	4
New Zealand	0	76	4, 281	17, 325	13, 838	5, 475	0	0
Other countries	4, 919	10, 255	12, 266	3, 723	5, 331	6, 203	5, 054	699
Total	454, 546	456, 158	629, 937	493, 456	565, 397	445, 741	494, 821	653, 182
Flaxseed:	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Argentina	20, 581	16, 057	20, 927	19, 236	6, 102	13, 342	5, 495	12, 736
Canada	3, 566	2, 025	2, 528	355	1, 490	506	718	176
Uruguay	23	0	38	0	221	0	0	503
British India	0	0	0	59	0	2	0	4, 311
Other countries	54	30	1	2	[2]	0	[2]	175
Total	24, 224	18, 112	23, 494	19, 652	7, 813	13, 850	6, 213	17, 901

[1] Preliminary. Imports for consumption.

[2] Less than 500.

TABLE 450.—*Imports (general) of principal agricultural products into the United States, by countries, 1926–27 to 1933–34*—Continued

Article and country from which imported	Year ended June 30							
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34[1]
VEGETABLE PRODUCTS—con.								
Pepper, unground:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Netherlands Indies	6,636	6,446	9,205	17,250	19,351	23,431	25,223	36,605
British India	11,048	7,907	6,218	7,505	6,995	4,754	2,517	3,852
United Kingdom	3,577	5,292	3,435	3,238	1,499	1,554	365	323
British Malaya	2,287	2,831	1,469	870	1,409	2,770	1,197	2,045
French Indo-China	280	44	2	261	1,964	538	0	337
Other countries	1,389	1,458	5,334	1,864	81	141	168	168
Total	25,217	23,978	25,663	30,988	31,299	33,188	29,470	43,330
Sugar, raw, cane:[17]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Cuba	3,953,360	3,399,294	4,108,503	2,769,371	2,404,979	2,350,218	1,691,625	1,289,159
Philippine Islands	427,747	612,859	604,695	808,878	859,467	874,374	1,225,019	1,458,555
Virgin Islands	4,072	8,617	7,983	4,837	3,578	4,075	5,037	3,623
Other countries	35,245	23,791	31,121	58,002	19,197	33,575	29,014	67,186
Total	4,420,424	4,044,561	4,752,302	3,641,088	3,287,221	3,262,242	2,950,695	2,818,523
Tea:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Japan	28,430	25,399	27,329	22,048	21,416	22,927	24,209	24,799
United Kingdom	22,136	20,380	23,608	21,578	23,310	23,340	17,809	18,274
Ceylon	16,578	16,326	16,893	19,047	16,895	16,855	16,100	12,692
China	11,655	10,131	8,878	7,405	6,704	7,329	6,490	7,430
British India	8,059	9,198	7,688	9,217	10,612	9,886	12,033	8,686
Netherlands Indies	7,660	5,398	5,358	4,891	5,184	6,637	14,848	12,904
Other countries	2,884	3,267	2,881	2,182	3,027	3,485	3,319	2,906
Total	97,402	90,099	92,635	86,368	87,148	90,459	94,808	87,691
Tobacco, leaf, unmanufactured:								
Product of the Philippine Islands	1,117	2,541	4,678	4,007	4,278	4,207	1,842	1,925
For cigar wrappers:								
Netherlands	6,358	6,218	6,095	8,415	2,988	3,365	2,222	2,070
Other countries	115	126	117	126	51	52	106	143
Total	6,473	6,344	6,212	8,541	3,039	3,417	2,328	2,213
All other leaf:								
Greece	28,383	15,694	16,741	13,400	18,913	19,467	13,838	14,706
Cuba	24,233	21,530	22,116	21,773	18,299	13,048	9,230	11,371
Turkey (Asia and Europe)	15,355	17,289	14,269	6,162	12,974	13,293	17,769	12,788
Italy	13,708	13,743	11,286	6,563	12,124	13,931	8,178	6,983
Germany	973	1,242	305	391	71	175	88	53
Other countries	847	729	1,284	87	284	728	1,687	1,029
Total	83,499	70,227	66,001	48,376	62,665	60,642	50,790	46,930
Onions:[18]	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Spain	1,084	701	1,007	768	177	152	16	7
Egypt	912	392	105	38	0	125	11	0
Chile	76	213	134	49	10	234	5	41
Italy	65	35	145	42	24	26	37	28
Netherlands	48	11	580	5	0	3	0	(2)
Other countries	113	47	79	16	3	125	4	4
Total	2,298	1,399	2,050	918	214	665	73	80
India rubber, crude:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British Malaya	602,756	534,834	811,843	788,594	733,419	759,029	561,782	907,092
Netherlands Indies	156,772	170,161	215,863	195,297	164,690	157,966	138,508	195,955
Ceylon	89,874	73,542	112,257	118,425	86,985	79,522	66,490	81,030
United Kingdom	55,155	110,575	50,938	7,249	27,970	65,715	1,102	1,516
Other countries	57,910	46,928	36,028	27,841	19,134	21,408	8,547	14,829
Total	962,467	926,040	1,226,929	1,137,406	1,032,198	1,083,640	776,429	1,200,422

[1] Preliminary. Imports for consumption.
[2] Less than 500.
[17] Tons of 2,000 pounds.
[18] Bushels of 57 pounds.

Bureau of Agricultural Economics, Foreign Agricultural Service Division. Compiled from Monthly Summary of Foreign Commerce of the United States, January and June issues, 1927–32; official records of the Bureau of Foreign and Domestic Commerce and of the United States Tariff Commission.

TABLE 451.—*Oil cake and oil-cake meal: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	1,394,589	196,587	910,992	40,356	640,889	38,790	760,478	57,811
Russia	672,830	0	724,454	0	952,118	0	905,013	0
British India	584,664	246	612,566	78	656,528	40	648,930	22
Egypt	356,706	3	416,278	0	411,634	0	242,679	4,544
France	336,094	75,294	461,485	170,810	372,931	234,852	359,525	243,826
China	270,571	0	274,466	0	[2] 132,973	0	239,486	0
Italy	242,957	603	259,048	931	173,797	6,350	175,845	3,116
Rumania	[3] 147,111	[3] 7	190,515	163	185,731			
Argentina	139,227	0	199,530	0	214,871	0	195,134	0
Netherlands Indies	135,473	0	168,550	0	156,245	0	[4] 163,908	0
Peru	70,465	0	79,112	0	69,552	0	56,140	0
Brazil	54,650	0	76,364	0	88,510	0	74,615	0
Canada	45,464	15,863	29,817	9,202	23,307	6,743	12,196	9,644
Bulgaria	37,520	10	77,414	30	67,264	11	56,021	0
Spain	28,199	3,754	5,096	18,120	2,147	16,229	5,599	7,617
British Malaya	14,301	11,530	13,512	11,487	18,240	12,031	35,502	13,120
Chile	7,725	1	5,490	0	7,841	0	10,691	0
Australia [5]	6,921	2,404	12,088	262	23,219	8	22,614	16
Latvia	4,355	0	2,393	1,360	1,735	223	1,777	701
Estonia	1,169	3,694	3,162	647	942	350	754	1,350
Total	4,550,991	309,996	4,522,332	253,446	4,200,474	315,627	3,966,907	341,767
PRINCIPAL IMPORTING COUNTRIES								
Denmark	26,788	1,558,619	40,536	1,547,206	69,465	1,127,958	62,167	1,151,603
Germany	768,849	1,064,314	440,686	1,129,400	125,970	1,349,844	61,107	951,526
United Kingdom	167,379	1,001,966	162,570	980,569	156,444	921,614	84,995	[6] 849,930
Netherlands	120,322	680,253	171,637	536,139	144,979	369,123	75,132	659,765
Japan	43,218	346,986	26,577	322,589	29,636	250,846	41,306	285,313
Belgium	83,170	324,675	123,706	466,498	133,743	432,928	145,508	558,967
Sweden	12,655	305,454	23,704	393,639	26,462	250,590	27,581	251,623
Finland	0	183,687	0	95,788	0	66,399	0	143,686
Irish Free State	0	111,617	0	127,082	0	107,678	0	63,215
Czechoslovakia	54,113	76,079	68,653	136,489	63,096	82,121	49,976	84,423
Switzerland	13,977	75,127	22,733	60,246	12,649	76,780	9,842	39,778
Norway	984	63,263	1,962	99,389	9,613	35,633	10,963	34,143
Poland	28,545	56,356	26,069	35,037	42,729	25,591	49,347	12,359
Ceylon	25,252	42,690	41,511	29,670	48,575	28,925	57,011	30,119
Austria	1,411	31,822	926	46,482	45	52,259	571	49,628
Hungary	15,310	16,411	18,617	36,763	8,331	20,449	14,904	7,120
Total	1,361,973	5,939,319	1,169,887	6,042,986	871,737	5,198,738	690,410	5,173,198

[1] Preliminary.
[2] Does not include figures for Manchuria after June 1932.
[3] 4-year average.
[4] Java and Madura only.
[5] Year ended June 30.
[6] Includes some soybean cake and meal.

Bureau of Agricultural Economics; official sources.
The class called here "Oil cake and oil-cake meal" includes the edible cake and meal remaining after making oil from such products as cottonseed, flaxseed, peanuts, corn ,etc. Soybean cake is not included in this table.

TABLE 452.—*Vegetable oils: Exports from the United States, 1909–10 to 1933–34*

Year beginning July	Corn	Cotton-seed [1]	Linseed	Cocoa butter	Coconut	Peanut	Soybean
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	11,299	223,955	1,713				
1910–11	25,371	225,521	1,314				
1911–12	23,866	399,471	1,852				
1912–13	19,839	315,233	13,004				
1913–14	18,282	192,963	1,794				
1914–15	17,790	318,367	9,091				
1915–16	8,968	266,512	5,356				
1916–17	8,780	158,912	9,012				
1917–18	1,831	100,780	8,909				
1918–19	1,095	178,709	8,222				
1919–20	12,483	159,400	8,523	[2] 11,048	[2] 141,088	[2] 4,922	[2] 67,782
1920–21	6,919	283,268	4,210	3,171	6,639	1,595	5,118
1921–22	5,280	91,615	2,744	1,856	10,185	1,802	537
1922–23	5,224	64,292	3,105	957	12,993	188	2,495
1923–24	4,196	39,418	2,628	888	19,423	168	2,892
1924–25	3,586	53,261	2,405	1,577	17,890	([3])	579
1925–26	2,927	59,015	2,335	1,766	15,444		623
1926–27	405	57,580	2,738	290	19,826		3,104
1927–28	329	61,470	2,221	1,897	22,358		7,514
1928–29	323	29,531	2,020	1,010	24,556		8,241
1929–30	363	31,998	2,129	347	30,225		5,509
1930–31	915	26,353	1,298	463	19,963		4,410
1931–32	774	40,985	873	321	22,083		3,649
1932–33	901	44,427	781	1,424	25,410		2,209
1933–34 [4]	1,562	23,189	696	3,557	21,678		1,676

[1] Crude and refined not separately reported 1909–10 to 1920–21; from 1921–22 to date the crude and refined figures have been added without converting.
[2] Not separately reported prior to July 1919.
[3] Included with "Other vegetable oils and fats", 1924–25 to date.
[4] Preliminary.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1910–18; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–34.

TABLE 453.—*Vegetable oils: Imports into the United States, 1909–10 to 1933–34*

Year beginning July	Castor [1]	Tung	Cocoa butter	Coconut	Cotton-seed [1]	Linseed	Olive	Palm	Palm kernel	Peanut	Perilla [2]	Rapeseed	Soybean
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1909–10	59	[3] 43,200	3,370	48,346	([4])	([4])	34,089	92,772	([4])	([5])		[6] 8,122	([4])
1910–11	57	[3] 52,815	4,279	51,118	([4])	([4])	37,382	57,100	([4])	([5])		[6] 10,222	([4])
1911–12	56	35,757	6,075	46,371	1,513	5,529	41,044	47,159	25,393	6,717		8,872	28,021
1912–13	42	44,975	3,603	50,504	3,384	1,803	43,803	50,229	23,569	8,968		11,623	12,340
1913–14	1,513	36,993	2,839	74,386	17,293	1,442	52,361	58,040	34,328	10,029		10,982	16,360
1914–15	504	37,052	150	63,135	15,162	4,015	55,230	31,486	4,906	6,397	69	11,240	19,207
1915–16	2,025	37,262	400	66,008	17,181	376	60,820	40,497	6,761	11,063	66	19,209	98,120
1916–17	2,590	51,481	166	79,223	13,703	831	61,381	36,074	1,857	22,696	443	8,137	162,690
1917–18	9,401	36,118	([7])	259,195	14,291	381	19,889	27,405	19	62,166	1,016	22,923	336,825
1918–19	3,778	46,625	3	344,728	20,410	7,424	32,983	19,281	1,945	85,445		15,683	236,805
1919–20	2,171	79,602	42	271,540	24,165	34,128	52,716	50,165	54	165,483		9,221	195,774
1920–21	792	33,300	915	173,889	1,315	14,974	35,288	31,076	2,769	18,163		8,789	49,331
1921–22	366	55,572	7,123	230,236	([7])	168,705	83,337	39,159		2,878		10,139	8,283
1922–23	1,398	89,392	3,010	212,573	45	56,764	117,262	118,816		7,553		13,274	38,635
1923–24	271	80,898	1,169	181,230	([7])	17,840	113,409	86,784	1,126	15,061		15,513	17,631
1924–25	308	94,695	733	250,121	0	23,587	118,071	114,387	37,364	3,510		14,691	20,434
1925–26	494	84,861	14	200,878	283	16,733	137,757	152,254	85,074	3,372		15,658	17,401
1926–27	164	102,428	256	286,776	6,396	1,331	134,729	110,184	14,760	7,959		20,480	23,553
1927–28	934	83,628	18	273,309	1	346	118,093	183,977	56,021	4,859	2,289	19,530	14,562
1928–29	130	115,240	17	377,288	([7])	6,677	147,794	228,230	80,514	3,406	5,791	19,071	17,172
1929–30	122	130,942	270	370,600	2	5,416	158,618	237,860	41,380	1,964	9,204	16,137	13,333
1930–31	125	99,402	15	315,942	1	256	126,202	313,940	17,197	21,163	9,652	14,479	5,915
1931–32	764	81,346	12	297,083	0	28	137,556	221,155	9,313	9,320	12,436	8,641	3,085
1932–33	1,130	83,858	13	260,700	0	36	125,159	253,638	6,000	1,209	21,373	7,676	1
1933–34 [8]	796	118,797	9	353,105	0	10,680	103,944	248,456	16,384	1,218	32,898	13,031	2,512

[1] Imports for consumption. (See introduction to Agricultural Statistics.)
[2] Not separately reported prior to 1914–15; 1914–15 to 1917–18 and 1927–28 are imports for consumption; 1918–19 to 1926–27 not available; 1928–29 to 1932–33 are general imports.
[3] Includes peanut oil.
[4] Included in all other fixed or expressed.
[5] Included in tung oil.
[6] Includes hempseed.
[7] Less than 500 pounds.
[8] Preliminary.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1910–18; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–34.

TABLE 454.—*Copra and coconut oil: International trade, average 1925–29, annual 1931–33*

COPRA

Country	Calendar year							
	Average 1925-29		1931		1932		1933[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Netherlands Indies	851, 367	6	794, 034	323	1, 058, 098	156	[2] 31, 939	[2] 0
Philippine Islands	409, 191	1, 017	384, 128	710	302, 561	314	680, 678	
British Malaya	386, 704	169, 135	420, 750	194, 938	442, 216	223, 897	471, 710	224, 094
Ceylon	239, 555	502	210, 258	[3] 326	102, 367	[3] 293	144, 121	
Fiji	62, 601	0	37, 894	0	33, 770	0	50, 617	0
Solomon Islands[3]	48, 372	0	47, 508	0	49, 853	0		
Mozambique	40, 469	0	48, 395	0	54, 366	0		0
Zanzibar	36, 278	11, 050	26, 363	115	26, 440	217	27, 328	
Tonga	32, 048	0	20, 001	0	18, 644	0		0
Samoa, West	30, 179	0	24, 779	0		0		0
Tanganyika	17, 685	0	16, 204	0	16, 274	0		0
Trinidad and Tobago	16, 331	1, 193	19, 485	1, 555	15, 419	1, 802	19, 358	1, 961
Gilbert and Ellice Islands[4]	10, 482	0	14, 668	0	15, 042	0		0
Total	2, 181, 262	182, 903	2, 064, 467	197, 967	2, 135, 050	226, 679	1, 425, 751	226, 055
PRINCIPAL IMPORTING COUNTRIES								
United States	0	469, 115	0	457, 947	0	453, 447	0	660, 872
Germany	777	442, 523	27	319, 944	188	288, 007	1, 793	267, 157
France	145	364, 155	158	430, 806	100	389, 501	38	440, 026
Netherlands	791	308, 530	360	191, 077	517	138, 664	269	94, 293
United Kingdom	0	124, 434	0	180, 333	0	215, 024	0	228, 693
Denmark	0	122, 840	0	156, 663	0	165, 731	0	159, 013
Australia[3]	0	71, 419	0	25, 058	0	27, 208	0	
Italy	9	61, 352	17	74, 598	10	81, 332	6	86, 072
Norway	0	43, 568	0	59, 519	0	75, 211	0	75, 539
Austria	6	28, 765	0	14, 822	0	15, 986	0	19, 670
Sweden	0	24, 518	0	11, 931	0	11, 460	0	41, 044
Belgium	113	18, 169	203	11, 944	212	9, 157	30	14, 548
Latvia	0	3, 496	0	3, 239	0	4, 951	0	5, 038
British India	1, 284	2, 926	114	2, 453	52	33, 083	87	59, 123
Total	3, 125	2, 085, 810	879	1, 940, 334	1, 079	1, 908, 762	2, 223	2, 151, 088

COCONUT OIL

PRINCIPAL EXPORTING COUNTRIES								
Philippine Islands	308, 196	0	363, 693	0	252, 808	0	351, 900	0
Netherlands	121, 614	9, 639	87, 578	4, 584	69, 937	12, 805	52, 997	11, 571
Ceylon	78, 807	13	107, 831	[3] 11	114, 804	[3] 6	118, 876	
Netherlands Indies	42, 689	10, 562	9, 625	11, 309	35, 900	8, 900	[2] 16, 179	[2] 0
Germany	33, 181	11, 254	19, 796	14, 899	7, 794	21, 801	2, 847	7, 467
France	29, 644	10, 076	16, 221	11, 385	13, 892	16, 951	9, 537	22, 715
British Malaya	20, 223	58	22, 756	560	27, 747	1, 019	41, 747	2, 395
Australia[3]	398	250	472	5	3, 962	0		
Total	634, 752	41, 852	627, 972	42, 753	526, 844	61, 482	594, 133	44, 148
PRINCIPAL IMPORTING COUNTRIES								
United States	21, 691	294, 849	18, 088	325, 175	23, 558	249, 117	26, 168	316, 078
United Kingdom	7, 473	105, 560	6, 733	96, 385	6, 229	56, 134	7, 548	29, 901
Belgium[5]	5, 924	34, 156	5, 312	16, 398	5, 800	14, 526	4, 693	10, 326
Sweden	3, 365	32, 563	901	41, 295	325	45, 836	7, 895	35, 835
Denmark	25, 414	27, 069	43, 379	15, 394	58, 621	6, 061	49, 624	8, 379
British India	1, 037	12, 054	371	21, 178	236	65, 889	306	57, 432
Egypt	1	11, 470	0	3, 925	1	3, 106	0	4, 110
Italy[5]	102	8, 724	76	3, 982	75	2, 026	11	2, 870
Rumania	[6] 1	[6] 1, 623	5	1, 184	0	482		
New Zealand	0	896	0	1, 042	0	1, 110	0	1, 173
Canada	0	739	0	1, 737	0	2, 410	0	2, 651
Total	65, 008	529, 703	74, 865	527, 695	94, 845	446, 697	96, 245	468, 755

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.
[4] Year ended June 30.
[5] Includes some other oils.
[6] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 455.—*Rubber: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British Malaya	931,522	362,113	1,162,535	280,972	1,069,623	207,303	1,295,227	374,924
Netherlands Indies	593,755	0	653,125	0	533,031	0	[2] 165,530	0
Ceylon	133,621	11,137	138,005	6,991	111,242	3,854	142,317	4,053
Brazil	46,638	0	23,096	0	11,195	0	20,840	0
British India	23,532	100	18,999	369	8,733	306	10,144	1,141
Indo-China	20,509	[3] 29	26,237	106	32,202	115	37,899	----------
British North Borneo	14,419	0	13,994	0	[3] 12,048	0	----------	0
Mexico	8,440	565	0	1,596	0	1,920	0	4,424
Bolivia	7,474	[4] 1	3,988	0	[3] 1,692	0	----------	----------
Nigeria	3,947	0	4,080	0	[3] 1,463	0	----------	0
Kamerun [3]	3,818	1	1,935	0	579	0	----------	0
French Equatorial Africa	3,242	[3] 211	[3] 1,834	0	[3] 841	0	----------	0
Belgian Congo	2,230	[4] 1	550	0	203	22	----------	----------
French Guinea	2,046	[3] 30	[3] 371	[3] 3	[3] 350	0	----------	----------
Switzerland	1,939	1,155	2,104	1,893	1,882	1,372	2,477	1,796
Ecuador	1,756	0	4	0	0	0	----------	0
Gold Coast	889	0	221	0	24	0	52	0
Peru	526	0	81	0	67	0	207	0
Angola	179	0	11	0	0	0	----------	0
Total	1,800,482	375,343	2,051,170	291,930	1,786,175	214,892	1,674,693	386,338
PRINCIPAL IMPORTING COUNTRIES								
United States	0	1,002,031	0	1,124,003	0	928,857	0	938,340
United Kingdom	0	124,052	0	190,818	0	97,577	0	164,181
France	16,049	106,453	2,421	105,591	1,394	91,079	2,456	156,576
Germany	6,051	87,825	11,551	99,330	5,336	106,181	7,117	128,345
Canada	0	59,580	0	56,583	0	46,854	0	43,289
Japan	0	50,307	0	97,548	0	125,974	0	154,172
Italy	351	27,855	24	22,613	28	34,273	109	43,453
Russia	0	23,145	0	62,192	0	67,679	0	68,711
Belgium	2,719	16,271	5,037	29,774	4,812	26,081	8,935	33,948
Spain	19	13,958	50	15,834	0	24,826	0	17,412
Netherlands	6,267	10,561	4,445	9,440	4,448	10,833	6,218	9,005
Austria	1,283	7,269	2,133	8,901	1,922	6,384	789	6,997
Sweden	144	5,420	66	8,736	151	9,730	86	9,356
Czechoslovakia [3]	276	5,348	776	18,060	1,285	22,483	----------	----------
Hungary	213	2,291	185	3,241	100	2,935	5	3,439
Denmark	4	1,341	0	2,136	0	2,006	0	4,092
China	0	1,016	0	6,774	0	[5] 10,564	0	12,807
Total	33,376	1,544,723	26,688	1,861,574	9,476	1,614,316	25,715	1,794,123

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.
[4] 2-year average.
[5] Does not include Manchuria after June 30, 1932.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Figures for rubber include "India rubber", so called, caoutchouc, caucho, jebe (Peru), hule (Mexico), borracha, massaranduba, mangabeira, manicoba, sorva, and seringa (Brazil), gamelastiek (Netherlands Indies), caura, ser nambí (Venezuela).

TABLE 456.—*Coffee: International trade, average 1925–29, annual 1931–33*

Country	Calendar year							
	Average 1925–29		1931		1932		1933[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Brazil	1,865,392	0	2,361,317	0	1,578,758	0	2,044,855	0
Colombia	324,198	[2] 5	401,269	3	421,376	2	----------	----------
Netherlands Indies	187,523	3,035	151,634	5,012	250,380	1,635	[3] 48,824	[3] 30
Venezuela	118,217	0	123,550	0	108,517	0	75,282	0
Guatemala	100,915	0	80,174	0	----------	0	----------	0
Salvador	96,466	0	[3] 120,439	[2] 0	[2] 87,423	[2] 0	----------	0
Haiti	72,395	0	57,960	0	58,076	0	----------	0
Mexico	58,789	422	60,210	175	44,197	136	90,952	46
Costa Rica	38,946	0	50,739	0	[4] 40,783	0	[4] 61,239	0
Nicaragua	30,645	0	34,934	118	17,918	105	30,212	31
British India	22,540	4,662	21,019	1,941	19,186	139	19,467	0
Tanganyika	17,217	45	20,722	16	25,451	6	----------	----------
Dominican Republic	9,311	0	11,306	0	14,137	0	26,001	0
Jamaica	8,729	0	9,177	0	8,877	0	9,824	0
Total	2,951,283	8,169	3,504,450	7,265	2,675,579	2,023	2,406,656	107
PRINCIPAL IMPORTING COUNTRIES								
United States	17,669	1,429,825	7,211	1,741,536	4,797	1,501,126	7,113	1,586,254
France	219	360,039	66	427,712	112	412,166	183	433,061
Germany	365	266,650	2,195	345,082	1,410	287,337	641	286,529
Netherlands	36,978	113,722	14,895	103,515	19,005	102,882	13,498	121,188
Italy	4	99,761	23	96,638	41	89,885	88	86,627
Sweden	25	90,654	[5] 119	[5] 116,616	[5] 95	[5] 85,165	[5] 119	[5] 99,378
Belgium	890	88,285	10,232	134,937	3,901	113,574	119	87,589
Denmark	564	53,588	716	66,383	515	54,880	69	58,991
Argentina	0	51,666	0	50,555	0	38,712	0	51,351
Spain	4	48,120	0	48,875	0	48,528	0	53,807
United Kingdom	235	40,698	204	39,387	183	47,313	----------	36,749
Finland	0	36,922	0	30,983	0	29,930	0	35,077
Norway [5]	0	35,572	0	40,315	0	34,578	0	36,042
Czechoslovakia	3	29,068	0	33,446	0	33,769	0	20,602
Union of South Africa	13	28,306	13	31,694	5	24,635	2	28,594
Switzerland	201	27,926	720	34,150	769	44,324	500	25,992
Canada	57	25,811	44	32,917	43	31,162	51	34,066
Algeria	59	21,971	2	30,453	----------	30,312	----------	31,036
Yugoslavia	5	21,180	0	19,671	0	15,299	0	14,670
Egypt	11	19,953	1	16,627	0	16,443	0	18,812
Cuba	1	19,382	1	1,873	13,424	324	----------	----------
Austria	6	18,368	5	21,644	1	16,551	1	11,295
British Malaya	9,010	17,046	5,210	12,169	5,285	11,729	5,815	13,775
Poland	6	15,819	6	17,986	2	15,379	2	16,683
Chile	21	14,385	34	10,626	12	7,366	----------	2,640
Greece	0	11,544	[2] 1	14,459	[2] 0	9,407	----------	10,220
Hungary	0	7,459	4	7,280	0	5,718	0	4,965
Ceylon	8	2,858	[2] 13	4,214	[2] 7	2,280	----------	3,059
Bulgaria	0	1,874	0	1,503	0	1,342	0	1,073
Total	66,354	2,998,452	41,715	3,533,246	49,607	3,112,116	28,201	3,210,126

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Java and Madura only.
[4] Raw, only.
[5] Includes a small amount of surrogate.

Bureau of Agricultural Economics; official sources except where otherwise noted.
The item "coffee" comprises unhulled and hulled, ground or otherwise prepared, but imitation or "surrogate" coffee and chicory are excluded.

TABLE 457.—*Tea: International trade, average 1925–29, annual 1930–33*

Country	Calendar year									
	Average 1925–29		1930		1931		1932		1933 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British India	364, 848	8, 260	365, 344	8, 660	351, 283	7, 597	375, 236	5, 586	336, 962	5, 163
Ceylon	228, 445	1	243, 021	[2] 1	243, 970	[2] 1	252, 824	[2] 1	216, 061	------
Netherlands Indies	124, 947	8, 434	137, 573	8, 472	152, 095	6, 965	154, 256	4, 200	[3] 116, 647	[3] 2, 186
China	116, 300	8, 214	91, 358	3, 028	92, 591	4, 421	[4] 86, 535	[4] 1, 493	88, 993	418
Japan	24, 631	1, 009	20, 316	1, 152	25, 410	1, 233	29, 535	878	29, 483	745
Formosa	20, 431	66	17, 619	86	17, 389	95	[2] 14, 065	[2] 35	------	------
Total	879, 602	25, 984	875, 231	21, 399	882, 738	20, 312	912, 451	12, 193	788, 146	8, 512
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	429, 507	0	452, 763	0	445, 426	0	487, 721	0	422, 662
United States	0	93, 052	0	84, 926	0	86, 733	0	94, 727	0	96, 582
Australia [2]	0	49, 242	0	50, 028	0	42, 321	0	48, 913	0	------
Russia	0	43, 287	0	53, 411	0	45, 653	0	35, 161	0	42, 564
Canada	0	38, 268	0	50, 886	0	33, 115	0	40, 418	0	39, 414
Netherlands	29	26, 144	93	29, 587	119	31, 214	128	36, 166	136	25, 485
Irish Free State	0	23, 220	0	23, 779	0	24, 686	0	22, 999	0	23, 802
Iran [5]	742	14, 925	131	14, 475	10	9, 943	0	9, 639	0	------
Morocco	0	12, 770	0	12, 688	0	13, 835	0	18, 213	0	18, 267
New Zealand	0	11, 159	0	10, 178	0	12, 115	0	10, 415	0	11, 600
Union of South Africa	218	11, 122	83	12, 332	101	14, 168	151	10, 463	80	12, 846
Germany	0	11, 037	0	13, 320	0	11, 672	0	10, 577	0	10, 341
Egypt	259	10, 814	97	[6] 12, 199	[6] 20	[6] 15, 433	[6] 5	[6] 16, 584	0	[6] 13, 917
British Malaya	1, 323	10, 491	925	9, 694	667	7, 516	526	4, 972	529	3, 770
Chile	4	5, 156	8	4, 851	5	5, 060	1	4, 246	------	2, 716
Indo-China	2, 164	4, 827	1, 206	3, 428	1, 294	3, 161	1, 362	1, 711	1, 466	1, 560
Poland	15	4, 428	7	4, 533	9	4, 477	4	3, 957	2	4, 143
Argentina	0	3, 867	0	3, 874	0	3, 950	0	3, 934	0	4, 182
France	81	3, 456	38	3, 278	40	3, 534	20	3, 286	26	4, 123
Algeria	16	2, 140	16	2, 646	41	2, 958	------	3, 170	------	4, 259
Czechoslovakia	3	1, 492	0	1, 364	0	1, 807	0	1, 788	0	681
Denmark	0	1, 276	0	1, 218	0	1, 359	0	1, 345	0	1, 364
Austria	0	1, 236	2	1, 150	2	1, 344	0	1, 042	0	736
Yugoslavia	0	869	2	647	0	620	0	456	0	384
Hungary	5	777	0	585	0	654	0	513	0	449
Total	4, 859	814, 562	2, 608	857, 840	2, 308	822, 754	2, 197	872, 416	2, 239	745, 847

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Java and Madura only.
[4] Does not include Manchuria after June 1932.
[5] Year ended Mar. 20 of following year; beginning 1931, figures are for year ended June 21 of following year.
[6] Includes yerba mate and imitation tea.

Bureau of Agricultural Economics; official sources except where otherwise noted.
These figures are for tea leaves only; tea dust and sweepings and yerba mate are not included.

FARM BUSINESS AND RELATED STATISTICS

TABLE 458.—*Crop summary: Acreage, yield per acre, and production, 1932-34*

Crop	Acreage harvested			Unit	Yield per acre			Production		
	1932	1933	1934		1932	1933	1934	1932	1933	1934
	1,000 acres	*1,000 acres*	*1,000 acres*					*Thousands*	*Thousands*	*Thousands*
Corn, all	108,668	103,260	87,486	Bushel	26.8	22.8	15.8	2,906,873	2,351,658	1,380,718
All wheat	57,114	47,910	42,235	do	13.1	11.0	11.8	745,788	528,975	496,469
Winter	35,216	28,485	32,945	do	13.6	12.3	12.3	478,291	350,792	405,034
All spring	21,898	19,425	9,290	do	12.2	9.2	9.8	267,497	178,183	91,435
Durum	3,946	2,310	990	do	10.3	7.2	7.2	40,600	16,737	7,086
Other spring	17,952	17,115	8,300	do	12.6	9.4	10.2	226,897	161,446	84,349
Oats	41,420	36,701	30,395	do	30.1	19.9	17.4	1,246,548	731,500	528,815
Barley	13,346	10,009	7,144	do	22.6	15.6	16.6	302,042	155,825	118,929
Rye	3,344	2,349	1,937	do	12.2	9.0	8.3	40,639	21,150	16,040
Buckwheat	454	462	480	do	14.8	17.0	18.9	6,727	7,844	9,062
Flaxseed	1,975	1,328	974	do	5.9	5.2	5.4	11,671	6,947	5,253
Rice	873	792	781	do	47.3	46.8	49.0	41,250	37,058	38,296
Grain sorghums [1]	7,864	8,149	7,569	do	13.5	10.8	4.6	106,306	88,082	34,542
Cotton, lint	35,939	29,978	27,515	Bale	[2] 173.3	[2] 208.5	[2] 169.2	13,002	13,047	9,731
Cottonseed				Ton				5,783	5,804	4,324
Hay, all	67,727	66,241	60,394	do	1.22	1.13	.94	82,488	74,607	56,690
Hay, tame	53,452	53,965	51,495	do	1.32	1.23	1.01	70,351	66,130	51,941
Hay, wild	14,275	12,276	8,899	do	.85	.69	.53	12,137	8,477	4,749
Sorgo [3]	2,633	3,354	3,557	do	1.46	1.43	.91	3,845	4,795	3,253
Timothy seed	372	281	126	Bushel	3.78	2.97	2.07	1,406	835	262
Clover seed (red and alsike)	1,102	1,096	964	do	1.53	1.36	1.14	1,690	1,489	1,099
Sweetclover seed	209	213	189	do	3.32	3.33	3.32	693	710	626
Lespedeza seed [4]	188	320	247	do	8.76	8.26	7.74	1,644	2,640	1,913
Alfalfa seed	301	451	392	do	1.98	2.27	2.09	595	1,026	821
Beans, dry, edible	1,408	1,692	1,378	Bag [5]	[2] 742	[2] 729	[2] 737	10,440	12,338	10,159
Soybeans [6]	828	847	1,152	Bushel	15.8	13.8	15.4	13,121	11,670	17,762
Cowpeas [6]	691	640	654	do	8.9	9.1	8.1	6,120	5,806	5,296
Peanuts [6]	1,607	1,345	1,571	Pound	646	673	677	1,037,840	905,710	1,063,035
Velvetbeans [1]	1,401	1,442	1,595	Ton	[2] 836	[2] 845	[2] 826	586	609	659
Potatoes	3,379	3,194	3,303	Bushel	105.9	100.3	116.6	357,871	320,203	385,287
Sweetpotatoes	926	759	762	do	84.7	85.8	88.5	78,431	65,134	67,400
Tobacco	1,411	1,757	1,335	Pound	727	784	821	1,026,091	1,377,639	1,095,662
Apples, total				Bushel				[7] 140,775	142,981	119,855
Apples, commercial				do				85,575	74,962	75,160
Peaches, total				do				[7] 42,443	[7] 44,692	[7] 45,404
Pears, total				do				[7] 22,050	[7] 21,192	[7] 23,474
Grapes, total [8]				Ton				[7] 2,204	[7] 1,910	1,775
Cherries (12 States)				do				[7] 127	[7] 117	114
Plums and prunes, fresh (5 States)				do				[7] 159	[7] 111	134
Prunes, dried (3 States)				do				[7] 195	199	202
Oranges (7 States)				Box				51,368	[9] 47,289	58,351
Grapefruit (4 States)				do				15,149	14,243	18,248
Lemons (California)				do				6,704	7,295	7,500
Cranberries	27	27	27	Barrel	21.4	25.7	16.2	585	704	443
Pecans				Pound				53,560	61,210	40,325
Sorgo sirup	250	240	228	Gallon	60.8	62.3	60.5	15,209	14,961	13,788
Sugarcane (Louisiana)	223	214	249	Ton	15.1	14.8	15.0	3,361	3,173	3,735
Cane sirup	110	127	139	Gallon	154.4	155.3	160.4	16,985	19,717	22,290
Sugar beets	764	983	766	Ton	11.9	11.2	9.8	9,070	11,030	7,481
Maple sugar	[10] 12,091	[10] 12,076	[10] 12,158	Pound	[11] 1.73	[11] 1.56	[11] 1.68	1,623	1,288	1,271
Maple sirup	[10] 12,091	[10] 12,076	[10] 12,158	Gallon	[11] 1.73	[11] 1.56	[11] 1.68	2,412	2,186	2,395

[1] All purposes.
[2] Pounds.
[3] For hay and forage, but not included in tame hay.
[4] Bushels of 25 pounds.
[5] Bags of 100 pounds.
[6] Covers only mature crop gathered for the beans, peas, or peanuts.
[7] Includes some quantities not harvested.
[8] Production is the total for fresh fruit, juice, and raisins.
[9] Includes 977,000 boxes of California oranges for charity.
[10] Trees tapped.
[11] Total equivalent sugar per tree.

TABLE 458.—*Crop summary: Acreage, yield per acre, and production, 1932–34* Continued

Crop	Acreage harvested			Unit	Yield per acre			Production		
	1932	1933	1934		1932	1933	1934	1932	1933	1934
	1,000 acres	*1,000 acres*	*1,000 acres*					*Thousands*	*Thousands*	*Thousands*
Broomcorn	304	280	300	Ton	[2] 244	[2] 214	[2] 199	37	30	30
Hops	22	30	36	Pound	1,094	1,319	1,127	24,058	39,965	40,345
Commercial truck crops:										
Asparagus [12]	110.4	116.1	112.8							
Beans, lima [12]	31.0	28.3	36.7							
Beans, snap [12]	153.7	163.8	192.0							
Beets [12]	13.7	14.4	17.9							
Cabbage [12]	140.3	125.4	175.1	Ton	7.04	5.80	6.93	[7] 987.1	[7] 727.7	[7] 1,213.3
Cantaloups	135.8	109.0	96.2	Crate	125	117	123	[7] 17,021	[7] 12,759	11,815
Carrots	29.8	32.6	35.9	Bushel	362	326	362	[7] 10,815	10,635	13,005
Cauliflower	31.8	30.2	28.6	Crate	243	232	232	[7] 7,730	[7] 7,000	6,621
Celery	35.6	31.2	32.2	do	278	276	268	[7] 9,894	[7] 8,624	8,617
Corn, sweet (canning)	165.1	199.7	286.7	Ton	2.34	1.97	1.73	387.2	394.3	495.6
Cucumbers [12]	78.2	98.5	121.8							
Eggplant	3.6	4.0	3.7	Bushel	222	228	201	809	910	746
Lettuce	163.6	141.1	154.3	Crate	109	123	123	[7] 17,820	[7] 17,374	[7] 19,055
Onions	91.8	79.4	82.7	Cwt	169	152	158	[7] 15,530	12,067	[7] 13,089
Peas, green [12]	299.2	327.5	350.8							
Peppers	17.3	17.6	15.2	Bushel	225	240	230	3,894	4,227	3,499
Spinach [12]	54.4	74.1	69.9							
Tomatoes [12]	438.1	434.6	514.0							
Watermelons	233.2	186.4	196.6	Number	260	269	249	[7] 60,623	[7] 50,099	[7] 48,961
Miscellaneous [13]	39.5	38.9	43.9							
Total above truck crops:										
For market (21 crops)	1,478.6	1,348.6	1,427.1							
For manufacture (11 crops)	787.7	904.0	1,139.9							
Potatoes, early	275.4	252.6	307.8	Bushel	121	122	139	33,320	30,791	42,796
Strawberries	188.3	196.2	197.7	Crate	70.5	67.6	67.1	[7] 13,280	[7] 13,258	[7] 13,264
Total of crops listed above [14]	359,528	329,128	288,596							

[2] Pounds.
[7] Includes some quantities not harvested.
[12] Includes production used for canning or manufacture.
[13] Includes following crops in certain States: Artichokes, sweet corn, and kale for market, and pimientos for manufacture.
[14] Includes soybeans, cowpeas, and peanuts grazed or hogged off in the Southern States.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 459.—*Index numbers of the volume of net agricultural production,* [1] *1919–34*

Year	Grains	Fruits and vegetables	Truck crops	Cotton and cottonseed	All crops	Meat animals	Dairy products	Poultry products	All livestock and livestock products	Total
1919	104	84	58	76	89	98	78	74	86	87
1920	117	100	70	88	101	91	77	74	83	91
1921	102	75	61	53	77	92	83	85	87	83
1922	100	108	81	65	89	102	87	88	94	92
1923	100	103	79	67	90	107	91	98	99	95
1924	102	96	91	91	96	102	94	91	97	97
1925	98	90	96	107	99	97	96	94	96	97
1926	96	109	93	120	106	98	99	99	98	102
1927	103	94	105	87	95	101	102	105	102	99
1928	108	117	102	97	106	101	103	106	103	104
1929	93	94	113	99	97	101	106	106	104	101
1930	85	106	113	92	95	101	107	109	105	101
1931	89	115	109	112	104	107	110	109	109	107
1932	85	101	113	86	90	106	110	105	107	100
1933	61	99	105	86	82	108	110	106	109	97
1934 [2]	42	106	114	65	69	115	106	102	110	92

[1] These index numbers are based on estimates of production of farm products for sale or for consumption in the farm home. Products fed to livestock, used for seed or in other forms of production are not included. Only the amounts of corn and oats sold for grain and only that part of the hay crop sold from farms are included. Production of meat animals is represented by total slaughter, including slaughter for farm use. The index number of dairy products production represents total milk produced for all purposes except whole milk fed to calves. Calendar-year production of livestock and livestock products is compared with crop production of the same year. Each group index, as well as the total, is obtained by multiplying the yearly quantities by a 1924–29 average farm price received by producers for each of the commodities, and the sum of these yearly values at average prices, divided by the corresponding average sum for the period 1924–29 taken as 100. The commodities included in constructing the index contributed about 93 percent of the gross income from agricultural production during the years 1924–29. The commodities included in each group are: Grains—wheat, corn, oats, barley, rye, buckwheat, flaxseed, rice, grain sorghum; fruits and vegetables—grapes, apples, apricots, peaches, pears, cranberries, figs, grapefruit, oranges, lemons, olives, potatoes, sweetpotatoes, dry edible beans; truck crops—asparagus, snap beans, beets, cabbage, cantaloups, carrots, cauliflower, celery, cucumbers, eggplant, lettuce, onions, peas, peppers, spinach, strawberries, tomatoes, watermelons; cotton and cottonseed; all crops include tobacco and hay in addition to all previous items; meat animals—cattle, calves, sheep, lambs, hogs; dairy products—milk total production less milk fed to calves; poultry products—chickens and eggs; all livestock and livestock products include wool in addition to the livestock and livestock products mentioned; the total index is the combined index of all crops and all livestock and livestock products.

[2] Preliminary.

Bureau of Agricultural Economics.

TABLE 460.—*Total harvested acreage and farm value of principal crops, by States 1932–34* [1]

State and division	Acreage harvested			Farm value [2]		
	1932	1933	1934	1932	1933	1934
	Acres	*Acres*	*Acres*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	1,325,000	1,314,000	1,309,000	22,235	38,932	27,925
New Hampshire	371,000	370,000	371,000	5,743	7,442	7,962
Vermont	1,077,000	1,072,000	1,074,000	16,611	19,018	24,442
Massachusetts	406,300	404,900	409,000	15,993	18,291	18,565
Rhode Island	48,000	50,000	51,000	1,450	1,793	1,787
Connecticut	346,300	344,600	341,300	13,373	14,493	15,251
New York	6,450,400	6,460,400	6,546,300	91,330	119,267	138,932
New Jersey	647,000	653,000	668,000	25,883	32,828	33,034
Pennsylvania	6,128,100	6,094,700	5,989,200	81,681	115,063	138,903
North Atlantic	16,799,100	16,763,600	16,758,800	274,299	367,127	406,801
Ohio	9,428,100	9,338,000	8,887,000	73,269	112,356	164,605
Indiana	10,339,700	9,769,500	9,403,800	64,705	93,066	150,231
Illinois	18,800,700	17,429,300	15,688,300	117,241	158,858	217,624
Michigan	7,299,000	7,223,000	7,165,000	75,130	102,523	127,873
Wisconsin	9,538,500	9,547,900	9,090,400	96,187	122,014	176,913
Minnesota	18,972,800	18,806,600	16,437,700	109,319	145,515	186,593
Iowa	22,397,200	22,315,400	18,021,400	123,200	223,273	255,824
Missouri	13,839,300	12,946,000	11,003,100	82,965	122,141	104,573
North Dakota	21,802,300	19,108,500	9,286,900	61,602	81,560	49,498
South Dakota	17,708,800	9,189,400	5,472,700	50,500	30,575	28,233
Nebraska	21,794,000	21,469,000	15,254,000	87,501	133,063	85,233
Kansas	24,222,900	20,293,900	17,498,400	82,468	106,248	118,139
North Central	196,143,300	177,436,500	143,208,700	1,024,087	1,431,192	1,665,339
Delaware	378,000	381,000	379,000	5,473	7,502	11,019
Maryland	1,616,000	1,646,000	1,610,300	25,005	33,901	43,676
Virginia	3,592,000	3,746,000	3,648,000	46,553	82,501	103,521
West Virginia	1,411,700	1,431,700	1,418,000	17,892	25,601	28,766
North Carolina	5,915,000	5,923,000	5,857,000	104,362	194,390	266,449
South Carolina	4,351,000	3,958,000	4,011,000	51,398	86,309	109,780
Georgia	8,425,500	7,539,000	7,789,000	67,039	128,588	161,445
Florida	1,203,300	1,162,200	1,147,700	57,914	66,659	82,941
South Atlantic	26,892,500	25,786,900	25,860,000	375,636	625,451	807,597
Kentucky	5,062,100	5,066,200	4,783,000	67,485	90,950	120,356
Tennessee	6,117,000	5,808,000	5,476,000	63,709	100,132	123,527
Alabama	7,367,000	6,324,000	6,686,000	62,051	99,454	142,975
Mississippi	6,844,000	5,804,000	5,999,000	66,630	100,325	141,395
Arkansas	6,601,000	5,857,000	5,580,000	68,328	95,851	106,228
Louisiana	3,974,400	3,487,300	3,594,300	54,711	68,821	88,294
Oklahoma	15,025,000	12,961,000	12,466,000	75,993	121,326	103,228
Texas	30,663,000	26,828,000	26,919,000	233,126	352,339	334,459
South Central	81,653,500	72,135,500	71,503,300	692,033	1,029,198	1,160,462
Montana	7,575,000	6,716,000	5,185,100	41,033	42,762	55,883
Idaho	2,924,000	2,776,000	2,584,000	33,884	49,561	55,980
Wyoming	2,036,000	2,030,000	1,355,000	13,754	18,012	16,854
Colorado	5,749,500	6,042,500	3,818,000	38,252	56,567	48,927
New Mexico	1,573,200	1,454,600	921,300	9,874	17,239	17,971
Arizona	456,000	501,000	490,000	12,608	17,471	23,978
Utah	1,186,000	1,175,000	934,000	17,018	19,006	16,369
Nevada	368,000	352,000	273,000	3,242	2,986	2,816
Washington	3,427,700	3,361,100	3,170,000	50,653	75,592	84,890
Oregon	2,731,000	2,684,000	2,609,000	34,602	51,699	49,510
California	5,156,000	4,855,000	4,914,000	239,670	296,849	351,130
Western	33,182,400	31,947,200	26,253,400	494,590	647,744	724,308
United States	[3] 354,670,800	[3] 324,069,700	[3] 283,584,200	2,860,645	4,100,712	4,764,507

[1] Includes corn (all), oats, barley, grain sorghum (all), wheat (all), rye, buckwheat, flaxseed, rice, beans (dry edible), soybeans alone, cowpeas alone, peanuts alone, velvetbeans alone, tame hay (all), wild hay, sorgo for forage and hay, timothy seed, red and alsike clover seed, sweetclover seed, lespedeza seed, alfalfa seed, cotton, tobacco, sorgo sirup, sugarcane (Louisiana), sugarcane sirup (except Louisiana), sugar beets, broomcorn, potatoes, sweetpotatoes, asparagus, snap beans, cabbage, cantaloups, cauliflower, celery, sweet corn (for canning), cucumbers, lettuce, onions, peas, spinach, tomatoes, watermelons; farm value also includes cottonseed, apples (all), peaches, pears, grapes, cranberries, oranges, hops, cherries, pecans, grapefruit, lemons, limes, apricots, plums, prunes (all), figs, olives, almonds, walnuts, maple products.

[2] Based on price received by producers Dec. 1, except for some early marketed crops for which price for marketing season is used, and differs from prices used in tables 461 and 462.

[3] Differs from total in table 458 in that cranberries, hops, artichokes, beets, carrots, eggplant, kale, lima beans, peppers, pimientos, sweet corn (for market), and strawberries are excluded, and for annual legumes only acreage grown alone is included.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

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TABLE 461.—*Gross income from farm production, by States, 1931–33*

State	Crops			Livestock and livestock products			Crops and livestock products combined		
	1931	1932	1933 [1]	1931	1932	1933 [1]	1931	1932	1933 [1]
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	22,759	18,572	35,712	25,664	22,068	20,331	48,423	40,640	56,043
New Hampshire	5,917	4,654	5,611	15,524	12,950	12,190	21,441	17,604	17,801
Vermont	8,174	7,520	7,390	30,992	25,423	24,927	39,166	32,943	32,317
Massachusetts	26,793	19,938	25,787	38,261	31,300	28,825	65,054	51,238	54,612
Rhode Island	2,839	1,860	2,709	5,866	4,879	4,660	8,705	6,739	7,369
Connecticut	17,886	13,222	15,737	29,463	25,068	24,443	47,349	38,290	40,180
New York	97,178	70,772	93,409	197,512	151,346	153,631	294,690	222,118	247,040
New Jersey	37,279	34,270	38,677	41,646	34,367	34,001	78,925	68,637	72,678
Pennsylvania	75,856	55,789	72,005	174,966	136,199	135,278	250,822	191,988	207,283
Ohio	86,722	56,475	73,257	185,129	135,162	143,742	271,851	191,637	216,999
Indiana	57,967	43,224	45,781	156,712	118,026	127,084	214,679	161,250	172,865
Illinois	109,386	96,788	86,803	241,099	174,297	188,052	350,485	271,085	274,855
Michigan	62,674	54,272	71,192	116,096	88,479	88,689	178,770	142,751	159,881
Wisconsin	35,227	25,052	34,013	221,806	159,042	165,910	257,033	184,094	199,923
Minnesota	48,490	45,365	55,644	219,277	150,166	153,092	267,767	195,531	208,736
Iowa	51,152	59,984	58,066	383,285	251,442	248,394	434,437	311,426	306,460
Missouri	56,335	47,175	57,703	188,998	139,186	145,786	245,333	186,361	203,489
North Dakota	20,003	40,183	43,373	53,166	38,115	41,123	73,169	78,298	84,496
South Dakota	8,255	23,575	5,398	125,735	52,631	67,980	133,990	76,206	73,378
Nebraska	43,997	42,889	55,432	204,179	124,016	126,084	248,176	166,905	181,516
Kansas	95,010	51,257	53,108	163,488	117,053	118,256	258,498	168,310	171,364
Delaware	6,905	5,249	5,906	9,017	6,734	5,799	15,922	11,983	11,705
Maryland	28,068	21,502	25,459	36,535	29,572	28,284	64,603	51,074	53,743
Virginia	63,624	46,756	67,094	66,854	54,463	49,753	130,478	101,219	116,847
West Virginia	21,746	15,083	18,275	37,810	29,704	29,051	59,556	44,787	47,326
North Carolina	118,381	104,338	182,240	59,616	45,796	44,574	177,997	150,134	226,814
South Carolina	61,213	50,955	73,546	28,341	22,379	22,088	89,554	73,334	95,634
Georgia	89,033	66,702	107,129	49,398	38,863	36,240	138,431	105,565	143,369
Florida	84,419	65,937	61,448	20,635	16,592	16,410	105,054	82,529	77,858
Kentucky	67,612	58,495	67,277	72,334	55,087	55,214	139,946	113,582	122,491
Tennessee	70,765	58,642	78,710	61,404	46,936	46,984	132,169	105,578	125,694
Alabama	80,686	67,215	87,466	44,848	34,081	34,386	125,534	101,296	121,852
Mississippi	89,953	72,355	91,716	38,848	29,923	28,231	128,801	102,278	119,947
Arkansas	87,680	71,246	84,474	36,906	29,608	28,926	124,586	100,854	113,400
Louisiana	70,580	57,256	64,797	30,434	23,674	22,284	101,014	80,930	87,081
Oklahoma	75,990	64,551	100,732	78,006	57,809	62,207	153,996	122,360	162,939
Texas	261,833	227,338	292,930	187,789	132,816	148,029	449,622	360,154	440,959
Montana	14,626	25,502	22,059	47,474	29,598	33,738	62,100	55,100	55,797
Idaho	25,364	23,123	35,290	35,452	24,230	26,537	60,816	47,353	61,827
Wyoming	7,644	5,741	8,222	25,641	18,534	20,668	33,285	24,275	28,890
Colorado	37,252	23,371	39,987	59,040	41,759	35,054	96,292	65,130	75,041
New Mexico	12,309	7,480	11,725	21,292	17,362	18,161	33,601	24,842	29,886
Arizona	13,872	11,083	15,114	17,540	13,726	14,195	31,412	24,809	29,309
Utah	10,811	10,447	12,561	27,277	18,129	18,669	38,088	28,576	31,230
Nevada	1,016	810	866	9,279	5,597	5,965	10,295	6,407	6,831
Washington	60,727	49,411	68,657	58,137	44,237	44,587	118,864	93,648	113,244
Oregon	33,610	29,577	38,963	47,953	35,383	36,076	81,563	64,960	75,039
California	277,753	233,321	271,958	183,715	139,813	129,771	461,468	373,134	401,729
United States [2]	2,748,528	2,290,778	2,876,880	4,210,439	3,033,620	[3]3,094,359	6,958,967	5,324,398	[3]5,971,239

[1] Preliminary.

[2] Totals include sugar beets for "Other States", 1931, $5,157,000; 1932, $4,456,000; 1933, $5,472,000.

[3] Includes $30,643,000, value of hogs slaughtered under Agricultural Adjustment Administration reduction plan, Aug. 23 to Oct. 7, 1933, but does not include $271,024,000 benefit payments on wheat, cotton, and tobacco, under the Agricultural Adjustment Administration.

Bureau of Agricultural Economics.

TABLE 462.—*Gross income from farm production, United States, by commodities 1931–33*

Product	Gross income			Product	Gross income		
	1931	1932	1933 [1]		1931	1932	1933 [1]
	1,000 dollars	*1,000 dollars*	*1,000 dollars*		*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
CROPS				CROPS—continued			
Corn	138,062	170,456	138,580	Pecans	6,157	2,998	4,749
Wheat	261,607	202,105	280,044	Sugar beets, for sugar	46,948	47,705	58,651
Oats	42,661	34,809	32,907	Sugarcane and sirup	12,538	13,657	15,078
Barley	12,332	16,895	15,089	Sorgo sirup	5,161	3,898	4,862
Rye	3,883	4,126	4,342	Maple sugar and sirup	4,223	4,049	2,847
Buckwheat	2,848	2,016	2,881	Forest products	120,386	105,427	114,916
Flaxseed	12,200	9,444	9,384	Farm gardens	219,412	214,650	219,085
Rice	21,230	16,155	26,390	Nursery products	44,891	30,854	36,283
Grain sorghums	4,101	2,581	5,032	Greenhouse products	67,219	43,002	51,978
Emmer and spelt	88	65	45				
Pop corn	883	630	393	Total	[2] 3,748,528	2,290,778	[2] 2,876,880
Cotton lint	483,666	424,032	633,266				
Cottonseed	44,807	40,316	50,920	LIVESTOCK AND LIVESTOCK PRODUCTS			
Tobacco	129,689	107,115	179,088				
Hay	74,978	53,116	60,297	Cattle and calves	680,572	498,634	489,171
Sorgo forage	1,719	1,348	2,281	Hogs	929,958	548,374	[3] 618,604
Hemp	12	5	6	Sheep and lambs	107,984	76,044	78,310
Cloverseed (red and alsike)	6,464	7,271	6,690	Horses	8,322	7,785	7,907
Sweetclover seed	1,543	707	991	Mules	3,482	3,648	6,306
Lespedeza seed	2,939	2,114	3,700	Chickens	325,795	240,779	206,920
Alfalfa seed	5,703	2,671	4,793	Eggs (chicken)	478,379	358,982	344,803
Timothy seed	2,700	1,219	1,451	Milk	1,614,394	1,260,424	1,262,554
Dry edible beans	24,253	18,159	29,658	Wool	50,414	30,014	75,033
Soybeans	5,077	4,904	4,347	Mohair	3,176	1,485	4,751
Cowpeas	3,648	3,124	3,306	Honey	7,963	7,451	
Peanuts	19,055	13,471	20,758				
Broomcorn	2,041	1,381	3,397	Total	4,210,439	3,033,620	[3] 3,094,359
Potatoes	145,583	114,240	222,932				
Sweetpotatoes	40,069	35,087	38,520	Grand total	6,958,967	5,324,398	[2] [3] 5,971,239
Truck crops	292,791	222,547	225,441				
Hops	3,642	4,199	11,059	United States: After deducting for interstate sales of crops, principally seeds, and adding for "other poultry" and honey not estimated by States	6,968,491	5,330,943	[2] 5,985,341
Apples	125,876	86,638	103,851				
Peaches	40,788	18,897	32,432				
Pears	13,676	7,627	10,252				
Cherries	7,964	5,157	6,575				
Plums and apricots	4,499	2,790	4,369				
Grapes	36,085	26,982	33,841				
Other fruits and nuts	134,988	112,356	118,380				
Strawberries	47,280	32,383	27,748				
Small fruits	16,171	11,371	9,243				
Cranberries	3,992	4,029	3,752				

[1] Preliminary.

[2] Does not include $271,024,000 benefit payments on wheat, cotton, and tobacco, under the Agricultural Adjustment Administration.

[3] Includes $30,643,000, value of hogs slaughtered under Agricultural Adjustment Administration reduction plan, Aug. 23 to Oct. 7, 1933.

Bureau of Agricultural Economics. Estimated quantities produced, sold, and consumed in farm households times weighted annual prices. Cash income plus value of commodities consumed in farm households equals gross incomes. For feed and seed crops, horses, and mules, value includes sales by farmers in some States eventually bought by farmers in other States. These interfarm sales tend to overestimate the total income from farm production for the country as a whole.

TABLE 463.—*Gross income from farm production by groups of commodities, expenditures, income available for operators' capital, labor, and management and current value of capital employed in agriculture, United States, 1924–33*

Item	1924	1925	1926	1927	1928	1929 [1]	1930 [1]	1931 [1]	1932 [1]	1933 [1]
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
Crops:										
Grains	1,755	1,496	1,432	1,592	1,513	1,297	806	488	450	506
Fruits and nuts	671	683	694	690	705	707	567	457	325	376
Vegetables	953	1,193	1,093	1,062	967	1,130	934	726	609	747
Sugar crops	104	95	103	104	92	83	94	69	69	81
Cotton and cottonseed	1,710	1,740	1,251	1,464	1,470	1,389	751	528	464	684
Tobacco	259	251	237	257	278	286	212	130	107	179
Other crops	718	690	658	648	650	542	454	348	264	301
Total crops	6,170	6,148	5,468	5,817	5,675	5,434	3,818	2,746	2,288	2,874
Livestock and livestock products:										
Cattle, hogs, and sheep	2,380	2,822	2,922	2,664	2,727	2,805	2,448	1,719	1,123	1,186
Poultry and eggs	989	1,114	1,167	1,108	1,202	1,241	1,059	816	609	560
Dairy products	1,678	1,759	1,805	1,911	1,994	2,323	2,031	1,614	1,260	1,263
Wool	87	97	88	86	111	99	68	50	30	75
Other	33	28	30	30	32	39	30	23	21	27
Total livestock	5,167	5,820	6,012	5,799	6,066	6,507	5,636	4,222	3,043	3,111
Total crops and livestock	11,337	11,968	11,480	11,616	11,741	11,941	9,454	6,968	5,331	5,985
Rental and benefit payments	-------	-------	-------	-------	-------	-------	-------	-------	-------	271
Grand total	-------	-------	-------	-------	-------	-------	-------	-------	-------	6,256
Expenditures:										
Current expenditures for production [2]	1,596	1,724	1,816	1,775	1,904	1,972	1,737	1,356	1,142	1,088
Depreciation of buildings and equipment [3]	850	896	889	894	894	912	892	843	805	762
Wages, interest, rent, and taxes [4]	3,092	3,214	3,255	3,310	3,355	3,402	2,977	2,393	1,920	1,779
Total deductions	5,538	5,834	5,960	5,979	6,153	6,286	5,606	4,592	3,867	3,629
Income available for operators' labor, capital, and management	5,799	6,134	5,520	5,637	5,588	5,655	3,848	2,376	1,464	2,627
Amount available for capital and management	1,394	1,687	986	1,136	1,097	1,136	−248	−842	−996	366
Return to capital and management as percentage of operators' net capital	*Per cent* 4.1	*Per cent* 5.0	*Per cent* 2.9	*Per cent* 3.5	*Per cent* 3.3	*Per cent* 3.3	*Per cent* −0.7	*Per cent* −2.8	*Per cent* −4.2	*Per cent* 1.9

[1] Estimates since 1929 have been adjusted to the revised estimates of production which were made after the 1930 census data became available. Estimates of income from 1924–28 have not yet been adjusted to revised production estimates. The 1929 estimate of income from crops, comparable with the estimates of 1924–28, was $5,609,000,000 and 1929 estimate of livestock was $6,302,000,000; total gross income on old base for 1929 was $11,950,000,000 compared with $11,941,000,000 when revised.

[2] All of the current operating costs except 7.5 percent of fertilizer costs, 9.5 percent of feed, 10 percent of binder twine, and 15 percent of ginning costs which are estimated as paid by nonfarmer landlords.

[3] Depreciation of farm buildings and farm equipment is based upon the value of buildings and farm equipment according to the 1919 and 1929 census, the amount spent for replacements on buildings and machinery and price changes for farm machinery and building materials. While the rate of depreciation fluctuates slightly from year to year, during the last 14 years it has averaged about 5 percent of the value of farm buildings and 21 percent of the value of machinery, automobiles, and trucks.

[4] Cash wages to hired labor plus an allowance of 25 percent for board and an additional 12½ percent of the cash wage to represent perquisites furnished hired labor and domestic hired labor contributing to production. Includes only that portion of interest payable by farm operators; figured at 75 percent of all interest payable on farm mortgage debt on real estate used in production and interest on all bank loans, other than real estate loans. It is assumed that 70 percent of all taxes on farm property used in production are paid by farm operators and that 72 percent of all rent paid is paid to nonfarmer landlords.

Bureau of Agricultural Economics.

TABLE 464.—*Current value of agricultural capital, gross income from farm production, and selected expenditures, United States, 1909–33*

Year	Current value of agricultural capital [1]	Gross income from farm production [2]	Selected expenditures							
			Wages (including board) [3]	Feed [4]	Fertilizer [5]	Farm implements (including autos and trucks) [6]	Cost of operating autos, trucks, and tractors [7]	Ginning [8]	Taxes [9]	Interest on mortgages [10]
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
1909	41,354	6,238	652	300	115	222	2	33	200	199
1910	42,985	6,643	674	302	137	239	4	39	204	210
1911	44,086	6,372	673	372	152	237	8	52	210	221
1912	46,081	6,784	697	336	153	256	15	45	212	232
1913	47,778	6,975	721	453	172	270	24	46	218	240
1914	47,965	7,028	696	431	188	284	44	56	222	252
1915	50,533	7,395	701	471	158	315	67	43	243	269
1916	55,041	8,914	766	638	163	394	116	50	260	299
1917	61,576	12,832	941	871	217	509	181	54	292	345
1918	67,055	15,101	1,162	1,023	297	569	246	64	311	401
1919	66,630	16,935	1,363	1,097	328	651	330	77	393	479
1920	78,436	13,566	1,636	1,028	350	742	410	91	483	545
1921	71,146	8,927	1,017	958	199	359	324	47	510	554
1922	62,022	9,944	981	888	192	433	296	59	509	568
1923	60,356	11,041	1,102	819	213	618	299	61	516	564
1924	58,244	11,337	1,074	750	215	568	321	82	511	567
1925	57,189	11,968	1,118	784	248	725	375	100	517	568
1926	57,255	11,480	1,161	818	242	671	417	117	526	568
1927	56,145	11,616	1,175	851	217	654	422	73	545	568
1928	56,561	11,741	1,183	885	275	801	451	88	556	563
1929	57,604	11,941	1,194	919	276	916	486	89	567	554
1930	57,670	9,454	1,011	685	270	677	483	77	566	545
1931	51,812	6,968	734	462	190	366	407	75	519	528
1932	43,351	5,331	475	409	113	186	384	56	450	511
1933 [11]	35,812	6,256	426	353	118	215	380	62	385	442

[1] As of Jan. 1. Includes land, buildings, machinery, and livestock. Estimates are census values for census years. The value of land and buildings for intercensal years is based on the index of land values per acre and a straight-line interpolation of total acreage in farms. Livestock values are annual estimates of the U. S. Department of Agriculture. Value of farm machinery is based on estimated purchases of farm machinery and changes in the prices paid by farmers for farm machinery.

[2] For years 1924–33, see table 463. The estimates for 1909–23 are based on items which represent about 95 percent of the gross income in 1924–33.

[3] Estimates from 1909–24 based on interpolations between census estimates and the index of farm wage rates; 1924–33 upon farm-wage rate, changes in the number of hired laborers per farm, and the number of farms.

[4] From 1909 to 1919 interpolation between census years based on an index of prices paid by farmers for feed and an index of production of feed crops. From 1919 to 1933 estimates are based on prices of feed crops, production of by products feeds and sales of feed grains and hay which are not used in industry or exported.

[5] Interpolated between census estimates based on estimated total fertilizer consumption and the U. S. Department of Agriculture index of fertilizer prices paid by farmers.

[6] Value of farm implements interpolated between the 1909, 1914, and 1919 census value of implements produced, after adjustment to represent retail values. Interpolations for other years are based on factory values of farm implements sold in the United States and raised to retail values. Farmers' expenditures for automobiles and trucks are estimated from registrations in principal agricultural States and prices paid by farmers.

[7] Includes the estimated cost of operating trucks, tractors, and one-half of the cost of operating automobiles. Expenditures per vehicle are based upon changes in the prices of gasoline, kerosene, oil and tires, licenses, and estimated annual mileage. Cost of operation is estimated cost per vehicle times estimated number of vehicles on farms.

[8] Annual cotton production multiplied by ginning costs per bale.

[9] Revised estimates of taxes are based on a study of real-estate taxes by States. In adjusting for total taxes it is assumed that the real estate tax is 85 percent and personal property tax is 15 percent of the total.

[10] Interpolations between total farm mortgages for 1910, 1920, 1925, 1928, 1930, using smoothed estimates for 1911–19 derived from value of current agricultural capital, and smooth curve, 1920–30.

[11] Preliminary.

Bureau of Agricultural Economics; tentative estimates of the Bureau

TABLE 465.—*Total population and farm population, United States: Total number Apr. 15, 1910, and yearly Jan. 1, 1920–35, annual movement to and from farms, and annual net change in the farm population 1920–34* [1]

Year	Total population Jan. 1 [2]	Farm population				
		Number on Jan. 1	Persons who during the year—		Net movement from farms during the year	Net loss of farm population during the year
			Left farms for cities	Arrived at farms from cities		
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1910	[3] 91,972	[4] 32,077				
1920	[3] 105,711	[3] 31,614	896	560	336	[5] 89
1921	107,375	31,703	1,323	759	564	[5] 65
1922	109,040	31,768	2,252	1,115	1,137	478
1923	110,705	31,290	2,162	1,355	807	234
1924	112,370	31,056	2,068	1,581	487	[5] 8
1925	114,035	31,064	2,038	1,336	702	280
1926	115,700	30,784	2,334	1,427	907	503
1927	117,364	30,281	2,162	1,705	457	6
1928	119,029	30,275	2,120	1,698	422	18
1929	120,694	30,257	2,081	1,604	477	88
1930	122,359	30,169	1,723	1,740	[6] 17	[5] 416
1931	123,630	[7] 30,585	1,469	1,683	[6] 214	[5] 656
1932	124,511	[7] 31,241	1,011	1,544	[6] 533	1,001
1933	125,197	[7] 32,242	1,178	951	227	[5] 267
1934	126,059	[7] 32,509	994	783	211	[5] 270
1935	([8])	[7] 32,779				

[1] Unless otherwise stated, these data are revised extimates based upon information furnished by farm families to the Bureau of Agricultural Economics adjusted to the trends indicated by the census data of 1920 and 1930.

[2] Except for 1910 and 1920, these are estimates by the Bureau of the Census.

[3] Census enumerations as of Apr. 15, 1910, and Jan. 1, 1920.

[4] Estimated by the Bureau of the Census.

[5] Net gain in farm population instead of loss.

[6] Net movement to farms during the year, a reversal of the earlier trend.

[7] Estimates since 1930 subject to revision following next census enumeration.

[8] Estimate not available when Yearbook went to press.

Bureau of Agricultural Economics.

TABLE 466.—*Farm returns, 1925–33*

[Averages of reports of owner operators for their own farms for calendar year]

Item	United States									North Atlantic		East North Central		West North Central		South Atlantic		South Central		Western	
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933
Reports—number	15,330	13,475	13,859	11,851	11,805	6,228	7,437	6,383	6,855	815	903	1,292	1,387	1,382	1,312	867	921	1,582	1,817	445	515
Size of farm—acres	304	315	275	284	270	284	249	233	234	128	134	144	135	333	337	190	178	211	221	538	556
Value of farm real estate, Jan. 1	$14,157	$13,379	$12,543	$12,299	$12,090	$12,009	$10,778	$8,170	$7,527	$7,024	$6,831	$9,087	$7,879	$12,154	$11,023	$5,451	$5,319	$5,567	$5,256	$9,781	$10,853
Value of farm personalty, Jan. 1	2,965	2,929	2,893	3,118	3,152	3,156	2,426	1,811	1,749	2,462	2,348	1,914	1,696	2,520	2,395	1,086	1,021	1,026	1,078	2,324	2,864
Receipts:																					
Crop sales	993	926	978	946	1,029	779	572	337	523	430	613	208	254	223	305	398	692	410	616	514	1,024
Sales of livestock	897	894	851	936	922	765	471	313	296	238	212	378	359	611	621	170	147	127	124	276	316
Sales of livestock products	585	589	638	689	681	635	482	350	386	1,013	1,029	459	514	259	267	173	213	98	131	341	425
Miscellaneous, other	76	39	38	37	37	32	24	14	17	25	40	16	13	10	13	10	17	9	8	24	25
Total	2,551	2,448	2,505	2,608	2,669	2,211	1,549	1,014	1,222	1,706	1,894	1,061	1,140	1,103	1,206	751	1,069	644	879	1,155	1,790
Cash outlay:																					
Hired labor	386	386	397	394	399	378	304	185	220	294	328	139	142	158	135	189	275	176	197	222	434
Livestock bought	242	242	238	238	238	172	102	87	76	95	101	92	72	157	114	60	59	41	38	50	109
Feed bought	244	232	243	262	276	276	184	118	134	345	383	100	118	130	121	62	86	34	53	126	144
Fertilizer	69	73	64	67	79	78	55	39	41	90	102	24	23	3	3	115	106	26	26	7	18
Seed	47	48	49	46	43	43	34	31	26	44	47	28	25	47	29	19	20	15	15	41	37
Taxes on farm property	191	183	180	184	187	196	183	149	127	155	146	168	127	211	178	90	75	97	85	193	206
Machinery and tools	119	130	129	151	159	118	62	34	44	62	61	34	41	41	52	20	27	18	31	41	84
Miscellaneous, other	179	179	157	176	191	191	167	114	139	168	197	118	121	145	150	68	111	59	67	202	364
Total	1,477	1,473	1,457	1,518	1,572	1,452	1,091	757	807	1,253	1,365	703	669	892	782	623	759	466	512	882	1,396
Receipts less cash outlay	1,074	975	1,048	1,090	1,097	759	458	257	415	453	529	358	471	211	424	128	310	178	367	273	394
Increase in inventory of personal property	223	158	242	244	201	−221	−304	−191	101	−273	90	−239	71	−309	78	−87	125	−90	65	−95	344
Net result	1,297	1,133	1,290	1,334	1,298	538	154	66	516	180	619	119	542	−98	502	41	435	88	432	178	738
Interest paid	225	215	201	202	199	199	196	173	160	115	110	176	159	294	263	90	88	125	111	239	289
Spent for farm improvements	131	128	141	126	125	92	57	29	40	62	60	30	32	16	29	32	53	22	39	20	34
Value of food produced and used on the farm [1]	274	282	273	269	262	242	200	161	163	184	183	156	158	156	153	188	198	145	152	144	152
Value of family labor, including owner [1]	793	779	768	768	772	716	608	448	470	616	640	498	501	527	532	298	333	286	331	605	620
Change in value of real estate during the year (minus sign (−) shows decrease)	+173	+2	+61	+72	+27	−757	−1,281	−1,036	+121	−634	−28	−1,167	+169	−1,910	+135	−503	+134	−656	+197	−1,070	−67

[1] Average of farms for which the item was reported.

Bureau of Agricultural Economics; compiled from reports of individual farms operated by their owners.
Division averages for 1925–26 in 1927 Yearbook, table 475; for 1927–28 in 1930 Yearbook, table 510; for 1929–30 in 1932 Yearbook, table 459; and for 1931-32 in 1934 Yearbook, table 464.

TABLE 467.—*Farm returns: Proportion of farmers obtaining net results within specified ranges, 1925–33*

Item	United States									North Atlantic		East North Central		West North Central		South Atlantic		South Central		Western	
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933
Reports—number	15,330	13,475	13,859	11,851	11,805	6,228	7,437	6,383	6,855	815	903	1,292	1,387	1,382	1,312	867	921	1,582	1,817	445	515
Size of farm—acres	304	315	275	284	270	284	249	233	234	128	134	144	135	333	337	190	178	211	221	538	556
Value of farm property Jan. 1 per farm—dollars	17,122	16,308	15,436	15,417	15,242	15,165	13,204	9,981	9,276	9,486	9,179	11,001	9,575	14,674	13,418	6,537	6,340	6,593	6,334	12,105	13,717
Net result per farm—do	1,297	1,133	1,290	1,334	1,298	538	154	66	516	180	619	119	542	−98	502	41	435	88	432	178	738
Proportion obtaining:	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
$5,000 or more	3.00	2.29	3.19	3.12	2.94	1.03	0.27	0.07	0.64	0.25	1.11	------	0.36	------	0.23	------	0.76	0.06	0.39	0.23	2.33
$3,000 to $4,999	6.82	5.49	6.42	6.77	6.24	2.37	.63	.18	1.28	.25	2.21	0.08	1.37	0.22	1.07	0.35	1.09	.06	.94	.23	1.55
$2,500 to $2,999	4.03	3.59	3.86	4.06	4.25	1.96	.63	.25	.88	.37	.78	.23	.72	.14	1.60	.12	.54	.13	.55	1.12	1.36
$2,000 to $2,499	6.26	5.46	6.53	6.35	6.01	3.20	.90	.36	1.85	.73	1.77	.54	1.73	.29	3.27	.23	1.09	.06	1.05	.67	2.91
$1,500 to $1,999	9.92	9.05	9.58	10.35	10.35	5.38	2.14	.97	3.28	3.07	5.21	.93	3.03	.51	5.41	.69	1.63	.25	1.76	1.80	3.50
$1,000 to $1,499	15.44	14.09	15.46	15.23	14.89	9.41	4.65	2.57	7.82	4.42	9.52	2.55	8.72	2.75	9.98	1.38	5.65	1.14	5.50	6.07	8.93
$500 to $999	21.79	22.10	22.07	22.07	22.63	17.23	14.84	9.86	19.18	13.00	19.60	12.70	23.07	9.84	20.35	6.68	16.29	6.57	17.17	13.71	17.28
$0 to $499	22.32	26.43	23.98	23.19	24.76	29.93	39.77	43.08	48.02	38.40	40.42	45.43	48.09	33.50	32.93	43.83	56.46	53.73	60.54	35.28	40.39
$0 to −$499	7.81	8.56	6.68	7.20	6.37	19.76	23.52	33.38	14.27	28.46	17.17	30.34	12.04	33.65	17.00	40.72	16.29	34.96	11.11	30.56	15.73
−$500 to −$999	1.54	1.69	1.28	1.04	1.01	5.54	6.87	6.00	1.83	8.47	1.77	4.34	.65	11.21	5.34	4.27	.20	2.28	.55	6.74	3.50
−$1,000 or more	1.07	1.25	.95	.62	.55	4.19	5.78	3.28	.95	2.58	.44	2.86	.22	7.89	2.82	1.73	------	.76	.44	3.59	2.52
All farms reporting	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Bureau of Agricultural Economics. The reports are those tabulated in table 466 (preceding). For distribution by geographical divisions in earlier years, see 1927 Yearbook, table 476; 1930 Yearbook, table 511; 1932 Yearbook, table 460; and 1934 Yearbook, table 465.

TABLE 468.—*Cotton: Estimated cost of production, by selected States and regions, 1933* [1]

State or region	Acreage harvested	Production of lint in 500-pound gross-weight bales	Average yield of lint per acre [2]	Gross cost per acre									Credit per acre for cottonseed	Net cost of lint			
				Prepare and plant [3]	Cultivate and hoe	Harvest [4]	Fertilizer and manure	Seed	Ginning	Miscellaneous [5]	Land rent	Total		Per acre		Per pound	
														Including rent	Excluding rent	Including rent	Excluding rent
STATE	*1,000 acres*	*1,000 bales*	*Pounds*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Cents*	*Cents*
North Carolina	1,090	684	314	3.54	5.45	5.74	4.31	0.69	2.34	3.24	4.74	30.05	4.06	25.99	21.25	8.3	6.8
South Carolina	1,379	735	266	3.54	4.71	5.05	3.74	.60	1.84	3.63	3.15	26.26	3.28	22.98	19.83	8.6	7.5
Georgia	2,147	1,105	257	3.73	4.53	5.13	2.96	.69	1.98	3.15	2.83	25.00	3.65	21.35	18.52	8.3	7.2
Alabama	2,378	969	204	3.51	4.39	3.85	2.53	.63	1.63	2.72	3.08	22.34	2.70	19.64	16.56	9.6	8.1
Tennessee	884	443	251	3.92	5.01	5.45	1.23	.59	2.26	3.06	4.68	26.20	3.04	23.16	18.48	9.2	7.4
Mississippi	2,859	1,159	203	3.06	5.20	4.41	1.01	.77	2.07	2.78	4.56	23.86	3.25	20.61	16.05	10.2	7.9
Louisiana	1,295	477	184	3.23	5.55	4.47	.79	.65	1.64	3.38	4.38	24.09	2.39	21.70	17.32	11.8	9.4
Arkansas	2,583	1,041	202	3.53	5.12	4.66	.60	.69	2.02	2.22	4.48	23.32	2.86	20.46	15.98	10.1	7.9
Oklahoma	2,915	1,266	217	2.40	3.27	5.57	.16	.56	2.08	2.09	3.19	19.32	2.30	17.02	13.83	7.8	6.4
Texas	11,488	4,428	193	2.37	3.49	4.35	.17	.60	2.10	2.14	3.93	19.15	2.58	16.57	12.64	8.6	6.5
REGION																	
Coastal Plain [6]	4,487	2,000	223	3.25	4.62	4.40	2.70	.68	1.83	3.11	3.10	23.69	3.13	20.56	17.46	9.2	7.8
Piedmont [7]	2,524	1,317	261	3.98	5.03	4.92	3.49	.64	1.86	3.34	3.40	26.66	3.48	23.18	19.78	8.9	7.6
Eastern hilly areas [8]	2,830	1,305	231	3.75	4.74	4.60	1.90	.62	1.92	2.64	3.88	24.05	2.94	21.11	17.22	9.1	7.5
River-bottom areas [9]	2,956	1,457	247	3.03	5.76	6.17	.50	.76	2.62	2.87	5.74	27.45	3.66	23.79	18.05	9.6	7.3
Western hilly areas [10]	5,345	1,950	182	3.14	4.68	4.14	.52	.65	1.76	2.42	3.57	20.88	2.41	18.47	14.90	10.1	8.2
Gulf coast prairie and Texas black prairie [11]	4,958	1,962	198	2.21	3.61	4.54	.13	.61	2.14	1.99	4.49	19.72	2.72	17.00	12.51	8.6	6.3
Western dry areas [12]	6,265	2,544	203	2.20	2.78	4.78	.11	.55	2.22	1.94	3.42	18.00	2.41	15.59	12.17	7.7	6.0
Irrigated areas [13]	590	497	421	5.22	4.83	11.78	.27	.63	4.61	10.38	9.69	47.41	4.86	42.55	32.86	10.1	7.8
United States [14]	29,955	13,032	218	2.97	4.24	4.84	1.07	.63	2.09	2.65	3.97	22.46	2.88	19.58	15.61	9.0	7.2

[1] Preliminary estimates. In computing averages, data were weighted by acreage harvested.
[2] Obtained by dividing the production of lint in terms of 500-pound gross-weight bales by the acreage harvested.
[3] Includes hauling and spreading manure.
[4] Includes picking and snapping cotton, hauling to gin, and hauling lint and cottonseed to local markets.
[5] Includes miscellaneous labor, irrigation (including water), dusting, picking sacks and sheets, crop insurance, use of implements, use of storage buildings, and overhead.
[6] Includes the lower and upper coastal plain of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and the black prairie belt of Alabama and Mississippi.
[7] Includes the rolling and hilly uplands of Virginia, North Carolina, South Carolina, Georgia, and Alabama, which border the Blue Ridge Mountains on the east and south.
[8] Includes Tennessee, exclusive of Lake County, the hilly cotton lands of northern Mississippi, northern Alabama, and northern Georgia, and western North Carolina.
[9] Includes the principal bottom lands of the Mississippi, the Arkansas, and the Red Rivers.
[10] Includes the hilly lands of Arkansas, Louisiana, southern Missouri, eastern Texas, and eastern Oklahoma.
[11] Includes the Gulf coast prairie of Texas and Louisiana and the black waxy prairie of Texas.
[12] Includes the dry-land areas of western Oklahoma, western Texas, and eastern New Mexico.
[13] Includes the irrigated cotton lands of California, Arizona, New Mexico, and Texas.
[14] Includes the 16 States of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Louisiana, Arkansas, Missouri, Oklahoma, Texas, New Mexico, Arizona, and California, which produced 99.9 percent of the United States cotton crop of 1933.

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TABLE 469.—*Corn, wheat, and oats: Cost of production, 1933* [1]

Crop and group of States	Acreage harvested	Production	Average yield per acre	Gross cost per acre									Credit per acre for by-product	Net cost per acre		Net cost per bushel	
				Prepare and plant	Cultivate and hoe	Harvest [2]	Haul to market	Fertilizer and manure	Seed	Miscellaneous [3]	Land rent	Total		Including rent	Excluding rent	Including rent	Excluding rent
	1,000 acres	*1,000 bushels*	*Bushels*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Corn (for grain):																	
Eastern:																	
North [4]	9,222	245,998	26.7	3.80	2.78	2.59	1.34	2.06	0.31	2.87	3.43	19.18	2.14	17.04	13.61	0.64	0.51
South [5]	13,467	180,054	13.4	2.31	2.34	1.31	.76	1.35	.27	1.91	2.46	12.71	.98	11.73	9.27	.88	.69
Ohio, Indiana, Michigan, Wisconsin, and Minnesota	12,117	379,408	31.3	3.63	2.00	2.35	1.12	1.77	.27	2.66	3.80	17.60	1.33	16.27	12.47	.52	.40
Illinois and Iowa	17,961	618,340	34.4	2.76	1.56	1.49	.90	.88	.26	2.38	5.21	15.44	.51	14.93	9.72	.43	.28
Missouri and Nebraska	15,283	351,993	23.0	2.14	1.54	1.14	.83	.42	.21	1.92	3.36	11.56	.54	11.02	7.66	.48	.33
Kansas, South Dakota, and North Dakota	7,884	100,648	12.8	1.81	1.41	.85	.52	.35	.20	2.22	3.01	10.37	.50	9.87	6.86	.77	.54
Southwestern [6]	10,795	132,114	12.2	2.01	1.99	.96	.74	.41	.27	1.67	2.80	10.85	.44	10.41	7.61	.85	.62
Western [7]	2,270	30,151	13.3	2.27	1.58	1.36	.72	.26	.23	1.74	2.24	10.40	.86	9.54	7.30	.72	.55
United States	88,999	2,038,706	22.9	2.63	1.90	1.51	.88	1.00	.25	2.20	3.53	13.90	.87	13.03	9.50	.57	.41
Wheat:																	
Eastern:																	
North [8]	2,595	41,534	16.0	3.25		3.43	.85	2.64	1.21	2.37	3.61	17.36	2.16	15.20	11.59	.95	.72
South [9]	849	8,009	9.4	2.23		2.19	.56	1.37	1.00	1.67	2.97	11.99	1.00	10.99	8.02	1.17	.85
Ohio, Indiana, and Michigan	4,231	71,174	16.8	2.38		2.66	.48	1.87	.99	2.08	3.41	13.87	1.11	12.76	9.35	.76	.56
Wisconsin, Illinois, Iowa, and Missouri	3,435	50,326	14.7	2.09		2.26	.44	.73	.73	1.83	3.47	11.55	.69	10.86	7.39	.74	.50
Nebraska, Kansas, Colorado, Texas, and Oklahoma	14,825	138,179	9.3	1.49		1.43	.25	.13	.42	3.05	2.70	9.47	.18	9.29	6.59	1.00	.71
Minnesota, North Dakota, South Dakota, Montana, and Wyoming	16,760	122,518	7.3	1.84		1.54	.33	.14	.53	2.38	2.07	8.83	.21	8.62	6.55	1.18	.90
Western [10]	5,215	97,235	18.6	2.68		2.30	.63	.28	.79	3.40	4.80	14.88	.55	14.33	9.53	.77	.51
United States	47,910	528,975	11.0	1.98		1.86	.39	.50	.63	2.62	2.89	10.87	.47	10.40	7.51	.95	.68

Oats:																	
Eastern:																	
North [4]	2,572	56,901	22.1	3.75		3.38	.70	1.70	1.08	2.38	3.13	16.12	2.48	13.64	10.51	.62	.48
South [5]	967	17,427	18.0	1.59		2.11	.59	1.16	.84	1.57	2.21	10.07	1.13	8.94	6.73	.50	.37
Ohio and Indiana	2,963	54,826	18.5	1.62		2.15	.42	.47	.53	1.69	3.07	9.95	.91	9.04	5.97	.49	.32
Michigan, Wisconsin, and Minnesota	8,062	183,829	22.8	2.20		2.23	.53	.40	.55	1.96	3.16	11.03	1.26	9.77	6.61	.43	.29
Illinois and Iowa	10,282	222,349	21.6	1.06		1.90	.36	.10	.42	1.59	4.38	9.81	.69	9.12	4.74	.42	.22
Missouri, Nebraska, Kansas, South Dakota, and North Dakota	7,917	109,342	13.8	1.35		1.71	.33	.14	.35	2.02	2.46	8.36	.45	7.91	5.45	.57	.39
Southwestern [6]	2,469	44,195	17.9	1.40		1.84	.46	.06	.51	1.31	1.99	7.57	.37	7.20	5.21	.40	.29
Western [7]	1,469	42,631	29.0	2.90		2.56	.83	.24	.66	2.51	2.88	12.58	1.17	11.41	8.53	.39	.29
United States	36,701	731,500	19.9	1.72		2.08	.45	.35	.52	1.84	3.23	10.19	.92	9.27	6.04	.47	.30

[1] Preliminary estimates. States grouped mainly on a basis of production practices and yields. In computing averages, data were weighted by acreage harvested.
[2] Includes threshing for wheat and oats.
[3] Includes charges for water for irrigation, twine and sacks, crop insurance, use of implements, use of storage buildings, overhead, and for wheat a charge for expenses incurred on acreage abandoned and not harvested.
[4] Includes the 6 New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, Kentucky, and Tennessee.
[5] Includes the States of North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi.
[6] Includes the States of Arkansas, Louisiana, Oklahoma, and Texas.
[7] Includes the States of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.
[8] Includes the 6 New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and Kentucky.
[9] Includes the States of North Carolina, South Carolina, Georgia, Tennessee, Alabama, and Arkansas.
[10] Includes the States of Idaho, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

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TABLE 470.—*Index numbers of prices paid by farmers, 1910–34*

[Calendar years 1910–14=100]

Year	Commodities used in production							Wage rates paid to hired labor	Commodities bought for use in production plus wages paid to hired labor	Commodities bought for family maintenance [2]	All commodities bought for use in production and family maintenance
	Feed	Machinery	Fertilizer	Building materials for other than house	Equipment and supplies	Seed [1]	All commodities bought for use in production				
1910	93	102	99	100	101	------	98	97	98	98	98
1911	107	101	99	102	100	------	103	97	101	100	101
1912	91	102	100	103	100	103	98	101	99	101	100
1913	107	98	102	101	100	97	102	104	103	100	101
1914	102	96	100	93	99	99	99	101	99	102	100
1915	100	100	112	102	106	120	104	102	103	107	105
1916	130	107	120	117	129	142	124	112	121	124	124
1917	184	126	137	137	156	149	151	140	149	147	149
1918	193	155	170	161	181	190	174	176	174	177	176
1919	211	161	182	189	180	280	192	206	195	210	202
1920	137	167	186	205	189	152	174	239	189	222	201
1921	97	156	156	156	152	134	141	150	143	161	152
1922	123	142	129	159	140	130	139	146	141	156	149
1923	134	146	126	161	136	142	141	166	147	160	152
1924	142	152	120	161	133	151	143	166	148	159	152
1925	141	153	129	164	140	172	147	168	152	164	157
1926	137	154	126	162	144	214	146	171	152	162	155
1927	138	154	121	160	141	197	145	170	151	159	153
1928	148	154	131	158	138	179	148	169	153	160	155
1929	145	153	130	159	136	185	147	170	153	158	153
1930	132	152	126	155	131	174	140	152	143	148	145
1931	93	150	115	139	116	152	122	116	120	126	124
1932	69	141	99	126	107	102	107	86	102	108	107
1933	79	137	96	129	103	95	108	80	101	109	109
1934	110	144	104	146	109	140	125	90	117	122	123

[1] 1912–14=100.

[2] Includes food, clothing, household operating expenses, furniture and furnishings, and building material for house.

Bureau of Agricultural Economics; compiled from prices reported to the Department of Agriculture by retail dealers throughout the United States. The prices used in constructing the above index numbers of prices paid by farmers are for constant quantities and sizes, but are not adjusted for changes in quality. Over a period of years marked changes may occur in the quality of certain commodities. For example, a study by the American Society of Agricultural Engineers indicated an improvement in quality of farm machinery of about 70 percent between 1910–14 and 1932.

The index numbers include only commodities bought by farmers; the commodities being weighted according to purchases reported by actual farmers in farm-management and rural-life studies from 1920 to 1925.

TABLE 471.—*Index numbers of farm prices, by groups, 1910–34*

[August 1909–July 1914=100]

Year	Calendar year							Year beginning July 1 of year shown						
	Grains	Cotton and cottonseed	Fruits	Dairy products	Chickens and eggs	Meat animals	All groups	Grains	Cotton and cottonseed	Fruits	Dairy products	Chickens and eggs	Meat animals	All groups
1910	104	113	101	99	104	103	102	95	114	103	96	95	94	98
1911	96	101	102	95	91	87	95	107	84	100	100	97	88	98
1912	106	87	94	102	100	95	100	93	93	95	104	97	104	98
1913	92	97	107	105	101	108	101	97	99	109	103	107	111	104
1914	102	85	91	102	106	112	101	120	69	74	104	103	108	98
1915	120	77	82	103	101	104	98	109	94	90	104	104	110	103
1916	126	119	100	109	116	120	118	172	148	111	120	137	143	146
1917	217	187	118	135	155	174	175	230	229	146	148	168	193	192
1918	227	245	172	163	186	203	202	227	233	179	175	197	211	206
1919	233	247	178	186	209	207	213	248	285	198	196	219	191	228
1920	232	248	191	198	223	174	211	165	140	151	178	193	140	157
1921	112	101	157	156	162	109	125	103	129	188	144	151	108	128
1922	106	156	174	143	141	114	132	110	194	147	152	144	111	138
1923	113	216	137	159	146	107	142	112	225	121	158	144	105	142
1924	129	212	125	149	149	110	143	156	189	153	145	160	126	149
1925	157	177	172	153	163	140	156	142	151	163	154	160	146	154
1926	131	122	138	152	159	147	145	125	106	121	154	152	143	136
1927	128	128	144	155	144	140	139	135	154	182	155	148	142	147
1928	130	152	176	158	153	151	149	118	150	142	159	158	158	146
1929	120	144	141	157	162	156	146	117	130	168	147	154	150	143
1930	100	102	162	137	129	133	126	82	79	126	122	109	112	104
1931	63	63	98	108	100	92	87	52	48	86	96	89	73	73
1932	44	47	82	83	82	63	65	43	51	75	78	80	60	62
1933	62	64	74	82	75	60	70	79	83	88	90	80	62	81
1934	93	99	100	96	89	68	90							

Bureau of Agricultural Economics.
See footnotes, table 472.

TABLE 472.—*Index numbers of farm prices, United States, 1910–34, as revised in 1934*

[August 1909–July 1914=100]

Group and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
GRAINS													
1910	110	112	112	109	107	105	107	106	102	97	92	91	104
1911	91	90	89	90	92	94	97	99	101	104	103	102	96
1912	104	107	110	117	123	121	115	106	100	95	88	83	106
1913	85	87	87	88	92	94	93	95	98	97	96	96	92
1914	97	97	98	99	101	99	97	104	111	109	108	111	102
1915	123	135	136	138	139	126	118	114	105	101	99	102	120
1916	112	115	111	112	112	110	113	128	138	147	158	157	126
1917	160	168	178	217	251	245	249	247	232	223	214	214	217
1918	219	228	236	236	233	228	228	229	229	222	216	217	227
1919	217	215	220	234	245	247	250	250	235	225	223	232	233
1920	245	246	249	263	276	284	266	241	222	194	158	139	232
1921	138	136	132	118	116	117	109	104	101	96	89	90	112
1922	93	103	113	115	116	111	105	100	96	100	106	110	106
1923	113	114	117	121	122	118	111	108	110	112	110	108	113
1924	110	113	114	113	114	116	130	141	140	150	148	156	129
1925	173	179	173	153	160	164	153	158	149	137	141	143	157
1926	146	143	136	133	134	133	127	129	122	124	122	121	131
1927	121	123	122	120	127	140	139	137	134	127	120	123	128
1928	125	128	135	143	159	151	141	119	116	115	110	112	130
1929	114	122	123	119	112	110	121	128	130	128	117	119	120
1930	118	115	107	110	105	105	91	100	99	91	79	80	100
1931	76	75	73	74	73	67	57	53	50	46	58	53	63
1932	52	52	52	51	49	45	43	44	42	37	35	34	44
1933	35	34	36	47	63	63	94	81	78	69	75	73	62
1934	76	79	79	77	78	89	91	106	112	109	109	116	93

TABLE 472.—*Index numbers of farm prices, United States, 1910–34, as revised in 1934*—Continued

Group and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
COTTON AND COTTONSEED													
1910	116	113	113	113	114	113	113	115	112	111	113	115	113
1911	117	114	112	114	116	116	110	100	88	77	71	70	101
1912	71	76	81	85	89	89	93	92	89	88	91	97	87
1913	97	96	95	95	94	94	94	93	101	106	102	98	97
1914	96	99	99	98	100	101	100	86	66	58	54	57	85
1915	60	65	67	73	74	72	70	70	81	98	99	99	77
1916	100	99	99	101	103	107	108	115	128	144	162	160	119
1917	148	143	148	160	168	189	204	199	196	214	232	237	187
1918	244	249	256	251	235	234	234	246	263	252	236	235	245
1919	224	207	205	213	231	249	260	258	252	277	295	291	247
1920	293	294	298	303	303	301	297	266	218	175	132	101	248
1921	93	89	80	76	78	78	79	91	130	150	137	131	101
1922	129	128	131	135	144	159	166	166	161	168	186	195	156
1923	203	215	224	222	211	208	199	190	204	222	238	253	216
1924	256	247	220	226	222	220	216	219	175	182	178	177	212
1925	182	184	195	189	184	183	186	186	178	171	144	139	177
1926	139	141	133	135	130	131	126	130	134	94	88	81	122
1927	85	94	102	101	113	119	125	136	179	169	162	153	128
1928	152	141	147	154	166	162	170	153	142	147	146	148	152
1929	147	148	154	152	148	146	145	146	146	141	132	130	144
1930	128	121	113	120	119	115	99	94	83	76	79	73	102
1931	72	76	80	78	74	65	71	53	47	42	50	45	63
1932	45	47	50	46	42	37	41	51	57	51	47	43	47
1933	45	44	48	49	65	69	84	71	69	71	76	77	64
1934	82	93	94	94	90	94	99	107	110	107	107	109	99
FRUITS													
1910	89	96	100	104	117	117	103	95	101	106	90	90	101
1911	95	99	100	117	120	121	108	92	99	103	88	88	102
1912	95	100	102	104	114	108	94	94	88	80	76	77	94
1913	83	88	98	109	120	133	111	119	115	113	100	92	107
1914	99	104	107	113	121	113	96	76	68	70	64	60	91
1915	63	64	65	76	86	96	95	93	91	86	89	79	82
1916	86	80	86	88	99	112	114	116	111	117	97	93	100
1917	97	106	108	115	124	137	130	111	107	120	123	137	118
1918	143	160	174	167	190	184	190	195	204	170	140	148	172
1919	149	163	185	193	208	201	187	167	171	170	162	182	178
1920	191	216	220	237	241	231	197	183	172	155	130	127	191
1921	128	123	127	141	153	173	171	159	164	185	178	187	157
1922	167	187	204	202	232	224	199	166	150	119	118	122	174
1923	132	139	143	150	168	160	164	128	121	119	110	102	137
1924	102	107	111	119	118	147	126	140	138	143	129	122	125
1925	134	142	161	171	200	227	193	172	181	180	163	140	172
1926	143	148	152	162	156	161	146	121	125	131	112	101	138
1927	108	111	113	119	120	148	156	166	182	174	164	166	144
1928	173	184	190	198	224	205	200	163	173	147	127	125	176
1929	126	120	121	123	132	146	151	157	156	158	145	158	141
1930	154	157	166	187	214	210	195	169	159	132	110	97	162
1931	99	99	104	109	116	118	110	88	94	88	75	74	98
1932	73	76	80	86	93	93	90	74	83	83	74	73	82
1933	70	64	65	69	74	86	81	74	78	77	70	74	74
1934	86	87	97	96	110	137	113	101	93	98	94	85	100
COMMERCIAL TRUCK CROPS													
1924	142	139	172	164	171	137	145	164	168	147	115	145	150
1925	156	169	121	124	142	177	172	147	149	155	155	164	153
1926	164	190	171	164	159	152	126	118	126	110	124	110	143
1927	117	101	117	120	139	155	147	158	112	93	98	102	121
1928	131	134	149	158	140	120	126	134	175	226	225	188	159
1929	166	143	146	147	126	136	161	155	146	145	159	166	149
1930	188	185	172	150	121	115	107	139	146	124	120	114	140
1931	117	120	108	118	111	83	98	105	134	143	137	136	117
1932	133	143	152	147	111	86	79	64	72	69	80	89	102
1933	91	96	92	74	89	111	102	95	147	123	127	114	105
1934	102	101	79	98	89	80	102	108	133	110	107	130	104
MEAT ANIMALS													
1910	99	100	110	116	110	109	104	99	102	101	96	93	103
1911	96	93	92	88	84	82	83	88	88	84	83	82	87
1912	83	85	87	96	98	96	95	100	102	104	99	99	95
1913	99	103	109	113	109	110	111	110	109	110	108	106	108
1914	109	112	114	114	113	112	114	117	117	111	106	104	112
1915	103	101	101	103	106	107	106	105	106	108	101	98	104
1916	101	108	117	122	123	124	124	123	128	122	124	125	120
1917	131	144	163	178	180	178	173	179	191	195	187	191	174
1918	189	189	195	205	211	208	206	212	215	205	199	200	203
1919	202	204	212	225	228	221	229	228	198	181	178	173	207
1920	182	185	185	187	183	182	181	177	177	170	151	125	174

TABLE 472.—*Index numbers of farm prices, United States, 1910–34, as revised in 1934*—Continued

Group and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
MEAT ANIMALS—continued													
1921	123	119	125	114	111	105	109	113	101	98	93	92	109
1922	96	109	119	118	120	122	121	115	113	114	109	108	114
1923	111	111	111	111	109	104	106	105	113	107	101	99	107
1924	102	103	105	107	108	106	104	117	116	122	116	114	110
1925	124	127	146	147	140	139	149	150	144	142	137	137	140
1926	142	147	148	146	149	155	153	144	149	149	143	140	147
1927	141	144	144	144	137	130	131	137	142	146	142	139	140
1928	138	139	140	142	151	151	157	162	174	160	150	143	151
1929	146	154	160	164	164	163	167	164	156	150	144	143	156
1930	147	150	150	146	142	141	126	119	128	123	118	112	133
1931	111	105	106	105	99	90	92	92	86	78	76	68	92
1932	68	65	69	66	59	57	72	69	67	60	57	52	63
1933	51	53	56	57	65	66	66	64	62	64	59	52	60
1934	55	65	66	64	64	64	66	68	82	74	72	73	68
DAIRY PRODUCTS													
1910	104	101	100	100	95	94	94	95	98	100	102	102	99
1911	100	97	94	90	88	88	90	92	95	96	101	104	95
1912	109	105	104	103	100	97	96	96	99	103	107	110	102
1913	108	108	109	107	102	100	99	99	103	105	109	110	105
1914	107	104	102	99	99	97	98	100	103	104	107	108	102
1915	109	107	103	103	102	99	98	98	99	102	105	108	103
1916	108	106	109	108	105	102	102	106	108	114	121	124	109
1917	124	127	125	131	130	127	127	132	139	147	150	156	135
1918	161	161	155	152	151	151	151	155	165	177	184	190	163
1919	185	176	180	184	178	174	176	181	185	194	205	209	186
1920	208	205	203	205	195	191	191	193	197	200	200	187	198
1921	181	172	172	164	143	137	140	147	147	154	156	154	156
1922	143	142	141	137	134	137	137	136	142	147	154	165	143
1923	164	162	160	161	152	149	147	151	159	166	172	171	159
1924	171	168	163	149	142	141	139	134	140	142	143	151	149
1925	149	148	153	149	148	147	147	151	153	163	164	163	153
1926	162	158	154	148	145	144	144	143	149	151	158	162	152
1927	162	161	160	159	153	148	146	144	150	156	158	163	155
1928	164	161	160	156	154	152	151	153	159	161	162	165	158
1929	163	163	163	160	156	153	152	153	155	158	157	155	157
1930	146	142	139	141	139	131	129	134	139	140	138	129	137
1931	118	113	115	112	102	98	98	102	107	112	110	106	108
1932	97	91	89	85	80	74	74	78	80	81	81	84	83
1933	81	74	71	72	78	80	88	85	89	91	92	88	82
1934	84	92	95	91	91	93	94	97	99	100	105	107	96
CHICKENS AND EGGS													
1910	127	115	99	92	92	91	90	91	99	108	118	126	104
1911	114	91	79	76	76	75	77	82	90	99	112	121	91
1912	123	115	97	85	84	83	84	89	97	108	120	121	100
1913	110	98	88	82	83	86	87	91	102	119	133	138	101
1914	128	114	105	87	88	90	91	96	107	109	122	133	106
1915	133	107	84	85	85	84	84	88	98	111	127	132	101
1916	125	111	92	91	95	98	101	107	120	137	151	162	116
1917	162	157	123	138	144	144	140	143	165	174	180	197	155
1918	209	203	153	152	153	151	167	175	189	205	227	254	186
1919	240	170	171	183	196	185	193	200	206	228	252	288	209
1920	261	226	202	192	194	187	196	208	229	243	267	276	223
1921	236	158	145	123	118	120	134	149	153	179	213	216	162
1922	153	152	113	116	119	118	118	115	137	160	188	201	141
1923	169	146	131	120	122	120	122	127	148	163	196	193	146
1924	162	157	114	111	116	121	126	136	155	176	199	211	149
1925	208	166	129	133	137	140	146	151	154	175	204	209	163
1926	173	149	134	139	142	144	144	142	158	174	200	208	159
1927	173	149	122	121	119	109	118	126	146	168	187	192	144
1928	176	147	127	127	134	133	139	145	160	171	185	196	153
1929	163	161	149	135	141	147	149	155	168	181	198	200	162
1930	177	156	122	123	116	109	105	111	128	131	146	127	129
1931	112	84	96	95	83	86	88	97	102	111	124	120	100
1932	90	74	66	65	64	63	69	78	86	102	112	117	82
1933	95	60	56	58	65	58	69	69	78	93	102	94	75
1934	82	78	74	72	72	72	76	86	104	108	125	119	89

TABLE 472.—*Index numbers of farm prices, United States, 1910–34, as revised in 1934*—Continued

Group and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
MISCELLANEOUS FARM PRODUCTS													
1910	99	100	97	92	88	86	92	96	96	90	90	91	93
1911	90	92	94	97	100	108	126	126	111	100	98	104	104
1912	106	113	123	134	138	132	118	106	100	101	98	93	111
1913	95	92	89	87	87	87	91	105	108	111	109	104	97
1914	101	100	99	99	100	102	105	104	95	89	86	87	97
1915	84	87	91	94	95	95	94	90	86	87	92	94	91
1916	97	104	111	116	119	122	124	128	132	134	143	149	124
1917	153	170	192	216	239	238	212	196	189	193	194	194	196
1918	198	197	192	177	168	165	181	213	209	206	211	205	195
1919	211	203	181	181	186	191	207	227	236	254	277	250	213
1920	247	242	255	293	326	318	280	228	178	162	154	144	227
1921	140	127	117	107	102	103	118	137	147	152	137	138	127
1922	139	134	133	130	131	133	134	142	134	137	132	138	135
1923	153	142	132	131	131	129	136	162	146	137	137	135	140
1924	145	143	138	137	133	136	139	151	136	138	143	141	141
1925	146	141	134	131	127	131	153	166	148	157	179	181	151
1926	176	173	178	205	199	175	171	172	163	155	159	151	172
1927	139	134	136	138	149	173	168	161	132	133	138	142	146
1928	152	137	138	139	135	128	124	121	116	120	125	142	133
1929	162	134	124	118	118	119	128	154	143	147	146	154	140
1930	157	143	140	142	143	142	129	119	121	112	107	114	131
1931	112	99	99	102	100	91	93	91	80	68	66	71	90
1932	69	64	66	65	63	58	61	73	66	62	61	70	67
1933	68	54	53	56	64	69	100	116	102	93	101	104	83
1934	94	98	98	96	92	90	94	125	129	137	123	113	108
ALL GROUPS													
1910	106	105	105	106	103	102	101	100	102	101	99	99	102
1911	99	96	95	95	95	96	98	98	95	93	92	94	95
1912	96	98	100	104	107	104	101	99	98	98	97	97	100
1913	97	97	98	99	98	100	99	102	105	108	107	105	101
1914	105	105	104	102	103	103	103	102	99	95	94	95	101
1915	97	98	96	99	101	99	97	95	96	100	101	101	98
1916	104	105	107	110	111	113	114	119	125	131	138	140	118
1917	141	148	156	173	185	186	183	181	183	188	189	194	175
1918	198	200	199	197	196	193	197	207	213	209	205	208	202
1919	206	197	197	206	213	213	220	223	215	219	227	227	213
1920	229	228	229	239	244	242	231	213	197	183	165	148	211
1921	142	130	127	118	113	113	116	123	128	134	130	130	125
1922	123	128	130	130	134	136	134	131	129	133	137	143	132
1923	146	144	143	143	141	137	136	137	142	144	147	148	142
1924	148	147	140	139	137	138	139	147	141	147	145	148	143
1925	155	154	156	152	152	156	158	160	155	156	156	155	156
1926	153	152	149	151	150	148	144	141	143	138	138	135	145
1927	133	132	131	131	134	138	139	142	148	148	147	147	139
1928	149	144	145	148	155	150	152	145	149	148	146	147	149
1929	147	145	146	144	142	142	147	152	150	149	145	147	146
1930	145	140	135	136	134	131	120	118	120	113	110	104	126
1931	101	95	97	97	92	86	86	82	80	77	79	75	87
1932	71	68	69	67	63	58	63	65	66	64	62	63	65
1933	60	55	55	58	68	71	83	79	80	78	80	78	70
1934	77	83	84	82	82	86	87	96	103	102	101	101	90

Bureau of Agricultural Economics; prices of farm products received by producers collected monthly from a list of about 12,000 special price reporters.

This list is made up almost entirely of country-town dealers, elevator managers, buyers, and merchants. The commodities by groups are as follows: Grains—wheat, corn, oats, barley, rye, rice. Cotton and cottonseed. Fruits—apples, oranges, lemons (California), grapefruit (Florida), pears. Meat animals—cattle, calves, sheep, lambs, hogs. Dairy products—milk (wholesale), milk (retail), butter, butterfat. Chickens and eggs. Miscellaneous—potatoes, sweetpotatoes, tobacco, peanuts, wool, flaxseed, beans (dry edible), hay, horses, and mules. Commercial truck crops—tomatoes, lettuce, cantaloups, onions, cabbage, celery, beans (snap), watermelons, asparagus, peas (green), cucumbers, spinach, carrots. These index numbers of commercial truck crops, as constructed, are adjusted for seasonal variation in that the index number for any month is a percentage of the 6 corresponding months in the base period and were not constructed in unadjusted form, nor in the adjusted form prior to January 1924.

TABLE 473.—*Index numbers of wholesale prices, by groups of commodities, United States, 1910–34* [1]

[Calendar years 1910–14=100]

Year	Farm products	Foods	Hides and leather products	Textile products	Fuel and lighting	Metals and metal products	Building materials	Chemicals and drugs	House furnishing goods	Miscellaneous	All commodities
1910	104	101	93	104	90	100	100	101	99	139	103
1911	94	96	91	99	89	95	100	100	96	99	95
1912	102	104	100	99	98	105	101	99	97	97	101
1913	100	100	106	102	116	106	103	99	103	85	102
1914	100	100	110	97	107	94	96	100	104	82	99
1915	100	101	117	96	98	101	97	138	103	79	102
1916	118	117	145	125	141	137	122	198	112	91	125
1917	181	162	192	175	200	177	160	203	136	111	172
1918	208	185	195	244	207	160	179	224	171	122	192
1919	221	201	270	240	198	154	209	193	194	126	202
1920	211	213	266	293	311	175	272	203	260	152	225
1921	124	140	169	168	184	138	176	142	207	99	142
1922	132	136	162	178	204	121	176	124	190	84	141
1923	138	144	162	198	185	128	197	124	200	91	147
1924	140	141	157	190	175	125	185	122	192	85	143
1925	154	155	163	192	183	121	184	125	189	99	151
1926	140	155	155	178	190	117	181	123	183	91	146
1927	139	150	167	170	168	113	172	119	179	83	139
1928	148	157	188	170	160	114	170	118	174	78	141
1929	147	155	169	161	158	118	173	116	173	75	139
1930	124	140	155	143	149	108	163	110	170	71	126
1931	91	116	134	118	128	99	144	98	156	63	107
1932	68	95	113	98	133	94	129	90	138	58	95
1933	72	94	125	115	126	94	140	89	139	57	96
1934	92	109	134	130	139	102	156	94	149	63	109

[1] Computed by reducing to a 1910–14 base the Bureau of Labor Statistics series, 1926=100; the index numbers for each group on the 1926 base are divided by the monthly averages for 1910–14. The averages used for each group are as follows: Farm products, 71.3; foods, 64.5; hides and leather products, 64.5; textile products, 56.3; fuel and lighting, 52.7; metals and metal products, 85.3; building materials, 55.2; chemicals and drugs, 81.2; house furnishing goods, 54.6; miscellaneous, 110.1; and all commodities, 68.5.

Bureau of Agricultural Economics.

TABLE 474.—*Farm-wage rates: Averages and index numbers, 1909–34*

Year	Average yearly farm wage [1]				Weighted average wage rate per month [2]	Index numbers of farm wages [3]	Year	Average yearly farm wage [1]				Weighted average wage rate per month [2]	Index numbers of farm wages [3]
	Per month—		Per day—					Per month—		Per day—			
	With board	Without board	With board	Without board				With board	Without board	With board	Without board		
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*			*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	
1909	20.48	28.09	1.04	1.31	23.00	96	1922	29.31	42.09	1.64	2.14	34.91	146
1910	19.58	28.04	1.07	1.40	23.08	97	1923	33.09	46.74	1.91	2.45	39.64	166
1911	19.85	28.33	1.07	1.40	23.25	97	1924 [4]	33.34	47.22	1.88	2.44	39.67	166
1912	20.46	29.14	1.12	1.44	24.01	101	1925 [4]	33.88	47.80	1.89	2.46	40.12	168
1913	21.27	30.21	1.15	1.48	24.83	104	1926 [4]	34.86	48.86	1.91	2.48	40.88	171
1914	20.90	29.72	1.11	1.44	24.26	101	1927 [4]	34.58	48.63	1.90	2.46	40.60	170
1915	21.08	29.97	1.12	1.45	24.46	102	1928 [4]	34.66	48.65	1.88	2.43	40.44	169
1916	23.04	32.58	1.24	1.60	26.83	112	1929 [4]	34.74	49.08	1.88	2.42	40.52	170
1917	28.64	40.19	1.56	2.00	33.42	140	1930 [4]	31.14	44.59	1.65	2.16	36.24	152
1918	35.12	49.13	2.05	2.61	42.12	176	1931 [4]	23.60	35.03	1.22	1.65	27.61	116
1919	40.14	56.77	2.44	3.10	49.11	206	1932 [4]	17.53	26.67	.88	1.21	20.46	86
1920	47.24	65.05	2.84	3.56	57.01	239	1933 [4]	15.86	24.51	.86	1.18	19.17	80
1921	30.25	43.58	1.66	2.17	35.77	150	1934 [4]	17.89	27.17	.98	1.31	21.50	90

[1] Yearly averages are from reports by crop reporters, giving average wages for the year in their localities.
[2] This column has significance only as an essential step in computing the wage index.
[3] Calendar years 1910–14=100.
[4] Weighted average of quarterly reports, April (weight 1), July (weight 5), October (weight 5), and January of the following year (weight 1).

Bureau of Agricultural Economics. Data for earlier years in 1928 Yearbook, table 531.

TABLE 475.—*Wages for male farm labor, by geographic divisions, quarterly, 1934*

Division	Per month, with board				Per month, without board				Per day, with board [1]				Per day, without board [1]			
	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
New England	24.40	25.74	27.52	27.07	43.96	46.56	48.12	47.68	1.43	1.47	1.62	1.61	2.09	2.16	2.27	2.29
Middle Atlantic	19.80	22.39	23.17	23.17	34.21	36.80	37.49	37.64	1.24	1.31	1.39	1.46	1.75	1.82	1.95	1.98
East North Central	15.69	18.95	19.24	19.74	25.06	28.29	28.48	28.83	.94	1.04	1.08	1.13	1.30	1.39	1.43	1.49
West North Central	14.13	18.88	19.26	19.17	23.08	27.92	27.69	27.56	.88	.97	1.03	1.04	1.23	1.37	1.41	1.44
South Atlantic	13.38	13.38	13.71	14.45	20.02	20.18	20.41	21.20	.71	.72	.76	.77	.93	.96	.97	1.02
East South Central	12.27	12.60	13.09	13.21	17.88	18.12	18.46	19.40	.62	.66	.65	.69	.84	.86	.86	.89
West South Central	14.87	15.59	15.67	16.20	22.30	22.90	22.98	23.45	.78	.80	.82	.82	1.03	1.02	1.01	1.06
Mountain	23.03	26.45	28.08	28.95	34.54	39.54	41.02	41.26	1.13	1.23	1.31	1.35	1.56	1.71	1.78	1.85
Pacific	25.87	30.29	31.46	33.62	45.68	48.42	51.39	53.68	1.30	1.40	1.56	1.57	2.00	2.11	2.23	2.30
United States	15.73	17.70	18.18	18.63	24.90	26.88	27.29	27.83	.87	.93	.97	1.00	1.21	1.27	1.30	1.34

[1] Includes piecework.

Bureau of Agricultural Economics; as reported by field and crop reporters.

TABLE 476.—*Farm real estate: Index numbers of estimated value per acre, by geographic divisions, 1912–35* [1]

[1912–14=100]

Year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	United States
1912	99	98	97	97	98	97	96	98	94	97
1913	101	100	100	100	100	100	100	102	99	100
1914	100	102	103	103	103	103	104	100	106	103
1915	99	100	104	105	98	99	100	98	107	103
1916	102	104	110	114	108	109	103	98	111	108
1917	112	112	116	122	119	120	116	106	122	117
1918	117	117	127	134	135	140	134	117	129	129
1919	123	121	135	147	161	162	143	130	134	140
1920	140	136	161	184	198	199	177	151	156	170
1921	135	127	151	174	174	163	159	133	155	157
1922	134	118	132	150	146	149	136	122	151	139
1923	130	116	128	142	152	149	132	115	148	135
1924	128	114	121	132	151	142	136	110	147	130
1925	127	114	116	126	148	141	144	105	146	127
1926	128	113	111	121	149	139	144	103	144	124
1927	127	111	104	115	137	133	139	101	143	119
1928	127	110	101	113	134	130	137	101	142	117
1929	126	109	100	112	132	129	136	101	142	116
1930	127	106	96	109	128	128	136	102	142	115
1931	126	101	87	97	116	117	121	100	140	106
1932	116	96	73	81	96	97	97	82	118	89
1933	105	82	62	64	80	79	82	69	96	73
1934	104	82	65	67	[2]87	85	88	69	97	76
1935	104	83	68	68	92	93	91	70	101	79

[1] All farm land with improvements, as of Mar. 1. Owing to rounding of figures, 1912–14 will not always equal exactly 100 percent.

[2] Revised.

Bureau of Agricultural Economics; based on values as reported by crop reporters.

Values as reported by the census for 1910, 1920, and 1925 will be found in 1927 Yearbook, table 511.

For details by States since 1912, refer to Stauber, B. R. The Farm Real Estate Situation, 1932–33, U. S. Department of Agriculture, Circular 309, 68 pp. illus. 1933.

TABLE 477.—*Number of farms changing ownership by various methods, per 1,000 of all farms, by geographic divisions, 12 months ended Mar. 15, 1930–34*

Method of sale and year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	United States
	Number per thousand	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*
Voluntary sales and trades: [1]										
1930	30.7	28.3	20.8	22.9	18.2	23.9	24.2	38.7	30.1	23.7
1931	30.7	24.5	18.6	18.9	14.5	19.4	16.7	24.8	22.1	19.0
1932	24.8	20.4	16.8	14.2	12.3	17.2	15.4	17.6	22.3	16.2
1933	22.5	21.0	15.6	13.8	15.3	18.9	17.6	16.8	21.3	16.8
1934	19.9	20.1	16.5	15.5	17.6	19.1	18.8	17.5	20.9	17.8
Forced sales and related defaults:										
1930	11.2	13.1	22.3	27.5	23.2	16.1	16.8	29.4	15.2	20.8
1931	9.7	13.8	24.0	31.3	32.2	25.9	22.4	36.4	25.0	26.1
1932	15.5	18.0	34.3	52.5	47.1	50.6	40.2	43.5	37.6	41.7
1933	19.8	28.3	43.9	72.0	59.5	63.5	51.2	52.8	44.1	54.1
1934	20.1	26.2	32.0	50.9	40.7	44.9	34.3	44.1	37.1	39.1
Inheritance and gift:										
1930	10.3	8.2	9.4	9.8	11.4	9.3	7.6	7.0	7.3	9.3
1931	8.8	8.5	9.3	9.7	12.5	9.9	7.4	6.9	6.6	9.4
1932	10.2	9.0	11.0	9.8	13.3	11.1	8.8	7.8	7.5	10.4
1933	11.9	11.2	13.3	12.9	16.7	13.7	11.8	9.5	11.2	13.1
1934	10.9	11.7	13.1	11.8	16.1	12.7	11.2	9.9	10.3	12.6
Administrators' and executors' sales: [2]										
1930	6.1	7.0	7.8	6.2	7.9	5.8	3.3	4.7	3.6	6.1
1931	5.6	7.0	7.5	5.4	6.5	5.6	3.4	3.6	3.6	5.7
1932	6.9	6.1	8.1	4.9	8.1	6.2	4.9	4.5	4.3	6.2
1933	7.1	7.9	7.6	6.1	10.2	7.5	4.8	4.1	3.9	7.0
1934	5.5	8.4	7.7	5.7	9.9	6.5	4.9	4.5	3.3	6.7
Total, all classes: [3]										
1930	60.2	58.0	61.6	68.0	62.7	56.5	53.3	81.7	57.6	61.5
1931	56.1	55.5	60.9	66.8	68.3	62.6	51.6	72.8	58.1	61.9
1932	60.5	55.3	72.4	83.8	83.4	87.2	71.3	75.5	73.7	76.6
1933	63.5	69.9	82.7	107.1	104.9	106.6	88.3	85.4	82.7	93.6
1934	58.4	68.3	71.4	85.9	87.3	85.9	71.6	78.1	74.3	78.6

[1] Including contracts to purchase (but not options).
[2] Includes all other sales in settlement of estates.
[3] Including miscellaneous and unclassified.

Bureau of Agricultural Economics; based on returns from crop reporters.

TABLE 478.—*Farm real estate taxes per acre, by States and geographic divisions, 1913–33*

State and geographic division	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
Maine	0.32	0.32	0.33	0.34	0.39	0.40	0.45	0.55	0.55	0.58	0.63	0.62	0.62	0.69	0.70	0.73	0.76	0.81	0.82	0.78	(1)
New Hampshire	.33	.35	.35	.36	.39	.41	.51	.57	.60	.59	.64	.64	.69	.72	.76	.81	.81	.76	.79	.70	(1)
Vermont	.22	.23	.25	.27	.29	.33	.37	.45	.45	.47	.48	.50	.51	.52	.54	.55	.56	.57	.56	.51	0.44
Massachusetts	.88	.95	.98	1.02	1.02	1.10	1.23	1.55	1.66	1.78	1.81	1.87	2.00	2.14	2.20	2.16	2.16	2.12	2.15	2.16	(1)
Rhode Island	.48	.49	.54	.55	.59	.64	.70	.81	.88	.92	.97	.99	1.03	1.16	1.23	1.26	1.32	1.36	1.39	1.39	(1)
Connecticut	.53	.57	.61	.64	.71	.76	.95	1.08	1.12	1.20	1.23	1.28	1.36	1.42	1.47	1.46	1.59	1.61	1.64	1.58	(1)
New England	.41	.43	.44	.46	.51	.53	.62	.74	.77	.81	.85	.86	.90	.96	.98	.99	1.01	1.02	1.03	.98	------
New York	.45	.48	.53	.54	.63	.64	.72	.87	.88	.90	.98	1.02	1.04	1.06	1.07	1.07	1.01	1.04	1.04	.98	(1)
New Jersey	.76	.77	.81	.86	.97	1.04	1.14	1.51	1.81	1.94	1.99	2.10	2.19	2.35	2.44	2.59	2.69	2.80	2.63	2.30	(1)
Pennsylvania	.50	.50	.51	.55	.57	.63	.68	.82	.90	.97	1.01	1.05	1.11	1.16	1.18	1.24	1.28	1.30	1.27	1.22	1.09
Middle Atlantic	.49	.50	.54	.56	.62	.66	.73	.89	.94	.99	1.05	1.09	1.13	1.17	1.19	1.22	1.21	1.24	1.22	1.15	------
Ohio	.53	.51	.60	.67	.69	.73	.84	1.07	1.15	1.23	1.23	1.28	1.31	1.35	1.44	1.42	1.41	1.36	1.15	1.02	.91
Indiana	.59	.59	.66	.73	.76	.79	.90	1.26	1.41	1.41	1.45	1.45	1.40	1.38	1.36	1.38	1.39	1.41	1.32	.91	.55
Illinois	.49	.46	.52	.61	.68	.65	.81	.99	1.05	1.06	1.02	1.08	1.15	1.13	1.12	1.11	1.14	1.16	1.03	.92	.72
Michigan	.54	.55	.63	.65	.74	.80	1.07	1.23	1.32	1.31	1.29	1.24	1.26	1.27	1.35	1.35	1.38	1.34	1.18	.85	(1)
Wisconsin	.47	.45	.49	.53	.58	.62	.89	1.04	1.08	1.05	1.07	1.03	.96	.98	1.07	1.09	1.13	1.07	.89	.76	(1)
East North Central	.52	.51	.57	.64	.69	.71	.89	1.10	1.18	1.19	1.19	1.20	1.21	1.21	1.25	1.25	1.27	1.25	1.10	.90	-----
Minnesota	.30	.34	.35	.39	.46	.48	.64	.76	.79	.77	.84	.75	.78	.80	.81	.85	.86	.87	.84	.67	.67
Iowa	.56	.56	.60	.64	.74	.76	.94	1.10	1.20	1.26	1.25	1.23	1.15	1.14	1.14	1.15	1.22	1.24	1.13	1.02	.90
Missouri	.14	.15	.16	.16	.18	.19	.25	.28	.38	.40	.40	.41	.43	.44	.45	.47	.47	.45	.41	.37	.32
North Dakota	.15	.17	.20	.21	.21	.25	.43	.44	.45	.43	.38	.38	.37	.37	.39	.39	.38	.38	.33	.29	.27
South Dakota	.15	.15	.17	.18	.22	.26	.35	.45	.41	.41	.43	.43	.44	.44	.44	.45	.46	.44	.35	.32	.20
Nebraska	.19	.19	.19	.20	.22	.23	.28	.42	.47	.41	.40	.39	.42	.42	.46	.46	.45	.44	.42	.36	.30
Kansas	.21	.22	.23	.24	.27	.28	.35	.42	.50	.45	.48	.48	.52	.54	.56	.57	.58	.55	.53	.41	.36
West North Central	.24	.25	.27	.28	.32	.34	.45	.54	.59	.57	.58	.57	.58	.58	.59	.60	.61	.61	.56	.47	.42
Delaware	.27	.29	.32	.34	.43	.47	.61	.68	.59	.62	.63	.69	.73	.79	.64	.64	.54	.52	.52	.49	.49
Maryland	.38	.41	.42	.47	.48	.58	.60	.72	.71	.76	.81	.85	.88	.89	.90	.92	.92	.93	.90	.85	.66
Virginia	.12	.13	.13	.16	.17	.18	.20	.23	.29	.30	.31	.33	.34	.34	.33	.34	.34	.34	.31	.26	.24
West Virginia	.13	.14	.17	.18	.20	.20	.28	.31	.33	.38	.43	.42	.43	.44	.45	.45	.49	.45	.44	.37	(1)
North Carolina	.10	.10	.12	.12	.14	.15	.20	.34	.41	.40	.48	.50	.55	.58	.63	.64	.60	.59	.51	.48	.34
South Carolina	.14	.15	.15	.15	.17	.24	.28	.35	.36	.33	.32	.38	.39	.39	.40	.41	.43	.40	.40	.37	.32
Georgia	.13	.15	.15	.16	.17	.20	.23	.28	.28	.28	.27	.28	.29	.30	.29	.30	.30	.30	.28	.26	.23
Florida	.14	.20	.23	.24	.28	.31	.39	.46	.47	.56	.67	.72	.95	.93	.94	.92	.92	.70	.61	.57	(1)
South Atlantic	.14	.15	.16	.17	.19	.22	.26	.33	.36	.37	.40	.42	.46	.47	.47	.48	.48	.45	.42	.38	------

Kentucky	.16	.16	.17	.18	.18	.19	.28	.38	.41	.41	.44	.40	.40	.41	.43	.43	.42	.42	.42	.38	.33
Tennessee	.15	.16	.17	.18	.21	.23	.26	.40	.45	.44	.46	.48	.43	.46	.46	.46	.47	.47	.43	.40	.37
Alabama	.10	.10	.11	.12	.13	.14	.15	.19	.19	.20	.20	.20	.21	.23	.23	.23	.25	.25	.25	.23	.22
Mississippi	.16	.17	.16	.18	.25	.31	.37	.50	.47	.51	.55	.59	.59	.57	.59	.67	.68	.64	.60	.52	.55
East South Central	.14	.15	.15	.17	.19	.22	.26	.36	.38	.39	.41	.42	.41	.42	.43	.44	.45	.45	.42	.38	.36
Arkansas	.16	.16	.17	.18	.23	.24	.30	.33	.34	.36	.35	.35	.34	.28	.29	.31	.32	.32	.33	.30	.29
Louisiana	.18	.19	.19	.21	.26	.34	.42	.55	.54	.47	.49	.53	.57	.54	.51	.53	.58	.57	.53	.49	(1)
Oklahoma	.20	.17	.23	.21	.24	.25	.37	.38	.40	.41	.44	.44	.42	.39	.44	.43	.46	.47	.41	.34	.25
Texas	.08	.08	.09	.09	.11	.12	.15	.16	.16	.17	.18	.19	.20	.20	.20	.22	.22	.23	.21	.17	.16
West South Central	.11	.11	.13	.13	.15	.17	.22	.24	.25	.25	.26	.27	.27	.26	.27	.28	.29	.30	.27	.23	------
Montana	.08	.08	.08	.09	.10	.10	.13	.14	.15	.14	.14	.13	.13	.14	.13	.13	.14	.14	.13	.12	.12
Idaho	.30	.27	.30	.30	.36	.38	.54	.63	.64	.62	.62	.57	.58	.58	.63	.62	.65	.65	.55	.55	.51
Wyoming	.04	.04	.05	.05	.05	.05	.08	.09	.08	.08	.07	.07	.07	.07	.08	.09	.09	.09	.10	.08	.07
Colorado	.12	.13	.13	.13	.16	.17	.22	.27	.29	.29	.28	.27	.28	.29	.30	.29	.29	.28	.23	.22	.20
New Mexico	.04	.04	.03	.03	.03	.04	.05	.05	.06	.05	.05	.05	.06	.06	.06	.07	.07	.07	.08	.07	.06
Arizona	.08	.08	.09	.08	.10	.10	.13	.18	.18	.15	.17	.16	.19	.19	.20	.19	.22	.21	.21	.19	.16
Utah	.18	.20	.20	.22	.25	.25	.34	.47	.48	.44	.47	.44	.46	.50	.52	.54	.52	.54	.54	.51	.45
Nevada	.08	.11	.11	.11	.13	.14	.17	.21	.22	.23	.22	.21	.22	.22	.21	.20	.17	.15	.15	.15	.15
Mountain	.10	.10	.10	.10	.12	.12	.17	.20	.20	.19	.19	.18	.18	.19	.19	.19	.20	.19	.18	.17	.15
Washington	.34	.32	.32	.33	.38	.42	.53	.67	.68	.68	.65	.61	.61	.61	.63	.67	.68	.68	.64	.52	.44
Oregon	.17	.16	.17	.19	.20	.22	.28	.37	.38	.37	.36	.36	.37	.40	.40	.41	.44	.40	.33	.33	(1)
California	.39	.44	.47	.49	.55	.55	.69	.93	.94	1.02	1.04	1.03	1.07	1.13	1.14	1.18	1.14	1.13	1.06	.94	.65
Pacific	.33	.35	.36	.39	.43	.44	.55	.73	.74	.78	.78	.76	.78	.82	.83	.86	.85	.83	.77	.68	------
United States	.24	.24	.26	.28	.31	.33	.41	.51	.54	.54	.55	.55	.56	.56	.57	.58	.58	.57	.53	.46	[2].39

[1] Figures not yet computed.
[2] Preliminary; based on figures for 35 States.

Bureau of Agricultural Economics.

TABLE 479.—*Farm real estate taxes per $100 of value, by States and geographic divisions, 1913–33*

State and geographic division	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
Maine	1.26	1.28	1.29	1.18	1.29	1.21	1.20	1.54	1.55	1.55	1.67	1.62	1.57	1.74	1.73	1.80	1.81	1.95	2.19	2.45	(1)
New Hampshire	1.16	1.25	1.29	1.27	1.29	1.31	1.48	1.64	1.60	1.71	1.80	1.67	1.76	1.84	1.93	2.06	2.06	1.94	2.19	2.14	(1)
Vermont	.91	.90	.88	.86	.88	.98	.98	1.17	1.19	1.32	1.36	1.43	1.42	1.44	1.49	1.49	1.49	1.55	1.64	1.66	1.45
Massachusetts	1.21	1.36	1.37	1.30	1.26	1.30	1.24	1.59	1.66	1.75	1.75	1.74	1.76	1.85	1.82	1.72	1.66	1.64	1.80	1.93	(1)
Rhode Island	.77	.76	.82	.79	.81	.85	.88	.99	1.07	1.11	1.12	1.10	1.06	1.09	1.09	1.07	1.07	1.11	1.19	1.28	(1)
Connecticut	.74	.81	.85	.82	.85	.86	.95	1.08	1.05	1.13	1.12	1.16	1.15	1.12	1.08	1.02	1.05	1.06	1.14	1.17	(1)
New England	1.07	1.13	1.12	1.05	1.13	1.12	1.15	1.38	1.40	1.48	1.52	1.51	1.51	1.58	1.56	1.55	1.53	1.56	1.70	1.78	------
New York	.82	.89	.96	.93	1.04	1.04	1.04	1.33	1.36	1.34	1.44	1.44	1.46	1.48	1.49	1.47	1.38	1.52	1.60	1.69	(1)
New Jersey	.84	.88	.91	.90	.99	1.03	1.04	1.30	1.60	1.72	1.59	1.54	1.47	1.52	1.53	1.56	1.58	1.68	1.64	1.54	(1)
Peunsylvania	.87	.89	.88	.87	.88	.94	.90	1.14	1.33	1.40	1.44	1.46	1.49	1.54	1.54	1.59	1.63	1.74	1.80	2.11	1.88
Middle Atlantic	.84	.88	.92	.90	.96	1.00	.99	1.25	1.37	1.41	1.46	1.46	1.48	1.51	1.52	1.53	1.51	1.63	1.69	1.84	------
Ohio	.72	.66	.74	.78	.73	.76	.74	1.11	1.26	1.34	1.34	1.46	1.53	1.65	1.79	1.76	1.79	1.89	1.87	1.98	1.64
Indiana	.72	.73	.75	.80	.75	.74	.71	1.08	1.49	1.52	1.63	1.70	1.73	1.85	1.87	1.89	1.94	2.18	2.46	1.92	1.09
Illinois	.40	.38	.42	.46	.48	.42	.43	.55	.71	.73	.74	.79	.88	.96	.98	.98	1.04	1.21	1.31	1.44	1.03
Michigan	1.04	1.05	1.14	1.09	1.12	1.19	1.42	1.62	1.76	1.75	1.78	1.74	1.81	1.84	1.96	1.96	2.04	2.08	2.18	1.89	(1)
Wisconsin	.76	.72	.71	.73	.74	.75	.90	1.04	1.16	1.14	1.19	1.18	1.14	1.20	1.32	1.36	1.43	1.52	1.44	1.39	(1)
East North Central	.63	.61	.65	.69	.69	.67	.70	.91	1.12	1.14	1.19	1.23	1.29	1.37	1.44	1.45	1.51	1.65	1.73	1.67	------
Minnesota	.54	.61	.55	.55	.58	.56	.59	.70	.83	.86	.98	.94	1.00	1.09	1.14	1.20	1.25	1.45	1.65	1.64	1.56
Iowa	.50	.46	.44	.45	.48	.44	.41	.52	.69	.75	.80	.83	.81	.86	.88	.90	.98	1.14	1.28	1.50	1.28
Missouri	.25	.27	.28	.26	.27	.26	.28	.34	.54	.58	.63	.67	.75	.80	.83	.86	.89	.98	1.06	1.17	.97
North Dakota	.48	.55	.61	.61	.59	.67	1.05	1.11	1.18	1.22	1.22	1.28	1.30	1.39	1.49	1.53	1.54	1.72	1.75	1.71	1.54
South Dakota	.35	.36	.38	.38	.43	.45	.49	.66	.71	.82	.93	.96	1.05	1.17	1.19	1.24	1.30	1.40	1.38	1.54	.96
Nebraska	.38	.38	.37	.37	.35	.32	.32	.52	.67	.60	.64	.65	.70	.72	.80	.80	.81	.84	.95	1.05	.85
Kansas	.51	.51	.51	.50	.53	.51	.56	.68	.92	.83	.94	.96	1.06	1.10	1.15	1.17	1.20	1.24	1.38	1.35	1.16
West North Central	.43	.44	.44	.44	.46	.44	.47	.60	.76	.76	.84	.86	.90	.96	1.00	1.02	1.08	1.20	1.31	1.36	1.20
Delaware	.52	.56	.60	.59	.69	.73	.89	1.04	.95	.96	1.04	1.04	1.05	1.14	.90	.88	.72	.72	.82	.92	.92
Maryland	.72	.78	.77	.80	.75	.86	.74	.99	.97	1.03	1.08	1.10	1.12	1.15	1.15	1.16	1.13	1.17	1.28	1.43	1.11
Virginia	.40	.45	.38	.44	.41	.37	.36	.43	.61	.56	.59	.64	.68	.70	.67	.67	.67	.76	.82	.77	.69
West Virginia	.44	.49	.58	.57	.58	.53	.65	.77	.90	.97	1.08	1.06	1.10	1.16	1.17	1.16	1.26	1.24	1.46	1.36	(1)
North Carolina	.41	.42	.44	.39	.38	.35	.37	.71	1.00	.81	.96	1.00	1.09	1.18	1.29	1.34	1.28	1.48	1.52	1.89	1.20
South Carolina	.52	.59	.56	.50	.50	.52	.43	.66	1.01	.88	.78	.88	.96	1.07	1.09	1.09	1.18	1.26	1.56	1.85	1.43
Georgia	.66	.82	.72	.68	.64	.57	.51	.79	.99	1.05	.99	1.05	1.09	1.20	1.14	1.16	1.16	1.27	1.52	1.74	1.38
Florida	.51	.79	.85	.84	.85	.83	.84	.86	.91	.95	.96	.88	.88	1.06	1.10	1.08	1.10	.86	.88	.96	(1)
South Atlantic	.52	.58	.56	.54	.53	.51	.49	.70	.89	.84	.88	.91	.97	1.06	1.06	1.08	1.07	1.12	1.25	1.36	------

Kentucky	.51	.52	.50	.47	.41	.37	.46	.73	.90	.92	1.03	.94	.92	.96	1.02	1.00	.96	1.06	1.26	1.39	1.18
Tennessee	.54	.60	.58	.56	.55	.52	.50	.89	1.07	.97	1.05	1.13	1.02	1.11	1.12	1.12	1.13	1.23	1.34	1.52	1.31
Alabama	.64	.66	.73	.75	.65	.63	.54	.82	.90	.88	.87	.81	.81	.91	.87	.84	.86	.96	1.23	1.31	1.11
Mississippi	.80	.89	.72	.75	.96	1.01	.85	1.69	1.58	1.75	1.99	2.06	1.99	1.96	1.97	2.15	2.06	2.12	2.43	2.66	2.50
East South Central	.58	.65	.59	.61	.58	.58	.56	.95	1.08	1.08	1.18	1.20	1.15	1.20	1.22	1.22	1.22	1.34	1.51	1.66	1.50
Arkansas	.84	.89	.82	.72	.80	.73	.70	.91	.98	1.03	1.04	1.01	1.01	.83	.86	.90	.93	1.12	1.32	1.56	1.40
Louisiana	.74	.81	.74	.77	.75	.90	.89	1.41	1.59	1.31	1.41	1.44	1.44	1.38	1.27	1.25	1.29	1.39	1.52	1.62	[1]
Oklahoma	.75	.68	.84	.71	.71	.69	.87	.92	1.12	1.20	1.36	1.30	1.22	1.12	1.24	1.20	1.25	1.39	1.50	1.54	1.04
Texas	.40	.41	.46	.42	.44	.46	.46	.55	.64	.70	.69	.68	.70	.72	.72	.78	.77	.90	1.04	.98	.86
West South Central	.52	.54	.61	.55	.55	.58	.61	.74	.88	.90	.92	.90	.88	.86	.88	.90	.93	1.07	1.19	1.21	------
Montana	.41	.42	.45	.49	.52	.49	.59	.75	.88	.89	.94	.94	.99	1.12	1.06	1.07	1.18	1.21	1.36	1.54	1.51
Idaho	.68	.64	.70	.62	.67	.64	.78	.98	1.19	1.20	1.26	1.24	1.30	1.31	1.43	1.40	1.46	1.48	1.50	1.87	1.71
Wyoming	.34	.33	.46	.45	.36	.30	.40	.55	.55	.64	.63	.76	.80	.81	.92	.94	.98	1.05	1.44	1.44	1.26
Colorado	.42	.49	.46	.46	.56	.56	.62	.81	.92	1.00	1.10	1.10	1.19	1.34	1.39	1.34	1.34	1.32	1.35	1.56	1.42
New Mexico	.48	.49	.40	.37	.37	.48	.55	.64	.85	.75	.77	.80	.96	.94	.93	1.06	1.04	1.05	1.47	1.52	1.28
Arizona	.25	.28	.34	.31	.37	.36	.44	.71	.83	.83	1.06	1.23	1.32	1.27	1.28	1.14	1.27	1.20	1.42	1.49	1.25
Utah	.56	.64	.61	.62	.68	.59	.70	1.19	1.24	1.13	1.22	1.14	1.19	1.29	1.34	1.38	1.33	1.41	1.76	1.96	1.71
Nevada	.42	.57	.58	.58	.63	.58	.60	.84	.96	1.12	1.17	1.26	1.37	1.38	1.32	1.27	1.09	.98	1.21	1.45	1.45
Mountain	.47	.49	.50	.48	.54	.50	.63	.84	.94	.97	1.06	1.09	1.12	1.22	1.22	1.22	1.26	1.24	1.44	1.65	1.44
Washington	.64	.63	.62	.58	.64	.69	.76	1.01	1.10	1.15	1.11	1.06	1.06	1.07	1.10	1.18	1.20	1.21	1.35	1.36	1.15
Oregon	.40	.40	.42	.46	.46	.48	.56	.73	.80	.82	.81	.83	.89	.99	1.01	1.07	1.15	1.06	1.05	1.29	[1]
California	.56	.62	.64	.59	.64	.62	.66	.86	.86	.92	.93	.90	.94	1.00	1.01	1.05	1.02	1.02	1.13	1.23	.84
Pacific	.56	.59	.59	.59	.62	.61	.66	.87	.90	.95	.95	.92	.95	1.01	1.04	1.08	1.06	1.06	1.16	1.26	------
United States	.55	.56	.57	.57	.58	.57	.59	.79	.94	.96	1.01	1.03	1.07	1.12	1.15	1.18	1.19	1.28	1.42	1.50	[2] 1.22

[1] Figures not yet computed.
[2] Preliminary; based on figures for 35 States.

Bureau of Agricultural Economics. These data are derived from the figures shown in the preceding table and the indexes of farm real estate values, which are estimated annually by the Bureau.

TABLE 480.—*Bankruptcies among farmers, number and percentage of total, by geographic divisions, fiscal years 1910–34*

Year ended June 30	New England		Middle Atlantic		East North Central		West North Central		South Atlantic	
	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
1910	123	6.0	52	1.8	98	3.2	287	15.9	63	4.5
1911	85	4.4	48	1.6	89	3.4	167	11.0	78	5.1
1912	148	7.4	58	1.7	78	2.7	219	14.2	79	4.7
1913	81	4.0	66	1.8	143	5.0	258	13.7	85	4.5
1914	88	4.0	63	2.0	91	2.8	289	14.6	100	4.5
1915	112	4.8	90	2.4	94	2.8	290	13.8	177	5.5
1916	143	5.3	88	2.0	146	3.9	276	12.6	369	9.8
1917	152	4.8	130	2.7	142	3.6	325	13.6	407	12.2
1918	125	4.3	97	2.4	126	3.6	267	11.4	410	13.8
1919	104	4.1	89	2.4	75	2.2	156	8.1	291	15.8
1920	72	3.8	67	2.2	83	3.3	213	12.0	169	10.1
1921	91	6.2	91	3.3	62	3.6	324	20.6	297	13.7
1922	92	4.9	77	2.6	247	9.0	1,066	40.3	678	17.0
1923	146	4.9	148	3.1	569	11.5	2,005	46.1	959	17.0
1924	196	5.8	171	3.2	684	12.2	2,785	42.5	1,085	16.9
1925	169	5.2	190	2.6	760	13.4	2,889	39.2	1,037	17.6
1926	145	4.6	224	3.4	844	11.3	2,813	35.4	747	12.7
1927	105	3.1	224	3.1	719	9.2	2,404	30.3	585	10.0
1928	162	3.5	274	3.5	874	9.3	1,729	24.2	685	9.9
1929	145	3.2	270	3.2	980	8.8	1,471	21.2	515	7.0
1930	141	2.8	305	3.6	973	8.0	1,257	19.2	491	5.9
1931	104	2.3	353	3.6	1,025	8.1	1,010	17.9	455	5.8
1932	186	3.8	372	3.8	1,580	10.7	1,099	20.5	467	5.7
1933	164	3.4	514	3.7	2,020	13.3	1,277	23.8	601	7.4
1934	171	4.1	420	3.5	1,384	9.0	983	22.0	699	9.7

Year ended June 30	East South Central		West South Central		Mountain		Pacific		United States	
	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
1910	38	2.8	66	8.3	35	7.1	87	9.0	849	5.7
1911	65	5.3	72	8.2	35	7.0	40	4.2	679	4.8
1912	91	5.7	62	7.0	55	9.1	47	4.6	837	5.4
1913	83	4.1	89	7.4	66	8.9	71	5.4	942	5.4
1914	100	4.2	81	6.8	118	15.7	115	6.9	1,045	5.6
1915	127	4.4	97	9.3	159	19.2	100	5.9	1,246	5.9
1916	164	6.8	178	9.4	179	17.0	115	6.1	1,658	6.9
1917	184	6.8	217	12.2	193	17.4	156	7.3	1,906	7.5
1918	179	5.3	186	15.1	105	11.4	137	6.7	1,632	7.0
1919	126	5.6	164	14.9	102	11.9	100	5.8	1,207	6.3
1920	108	6.8	95	10.0	104	16.2	86	5.9	997	6.4
1921	100	3.9	124	15.7	177	23.8	97	7.2	1,363	9.0
1922	201	4.9	264	19.5	419	38.2	192	11.0	3,236	14.4
1923	420	9.1	539	20.4	730	43.3	424	16.3	5,940	17.4
1924	483	9.7	788	22.3	1,040	46.3	540	15.7	7,772	18.7
1925	517	9.7	650	23.6	1,071	41.8	589	14.6	7,872	17.8
1926	579	9.5	764	25.6	1,142	42.7	511	11.9	7,769	16.5
1927	615	9.7	567	20.7	609	31.8	488	10.0	6,296	13.1
1928	521	6.9	561	19.5	420	24.0	453	8.5	5,679	10.6
1929	352	4.5	484	17.3	335	20.9	387	6.1	4,939	8.7
1930	336	3.8	375	14.7	260	17.1	326	4.6	4,464	7.4
1931	338	3.6	282	10.5	201	13.3	255	4.4	4,023	6.7
1932	311	3.2	308	10.2	215	15.2	311	5.0	4,849	7.7
1933	494	6.0	371	9.7	167	13.1	309	5.1	5,917	8.9
1934	399	5.9	329	13.3	131	13.0	200	3.8	4,716	8.0

Bureau of Agricultural Economics; compiled from reports of the Attorney General.

TABLE 481.—*Farm-mortgage debt: Estimated total for all farms, by States, Jan. 1, selected years from 1910 to 1930*

State and division	1910 [1]	1920	1925	1928	1930 [2]
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	13,210	20,890	26,097	25,252	24,823
New Hampshire	5,870	8,600	7,732	7,780	9,901
Vermont	15,850	29,040	28,001	28,322	33,102
Massachusetts	22,890	34,180	32,207	31,262	42,550
Rhode Island	2,210	2,350	2,435	2,455	3,854
Connecticut	16,080	25,800	27,276	27,423	30,514
New England	76,110	120,860	123,748	122,494	144,744
New York	154,190	224,060	226,776	219,812	247,633
New Jersey	31,720	39,500	41,741	40,370	56,884
Pennsylvania	95,620	133,080	120,281	116,432	174,037
Middle Atlantic	281,530	396,640	388,798	376,614	478,554
Ohio	113,320	210,760	214,409	222,101	259,630
Indiana	111,280	206,600	264,483	277,269	266,989
Illinois	266,780	502,860	650,353	685,365	631,266
Michigan	109,970	215,740	228,089	235,399	230,377
Wisconsin	193,600	455,470	504,553	529,992	502,549
East North Central	794,950	1,591,420	1,861,887	1,950,126	1,890,811
Minnesota	146,160	455,540	553,784	558,458	530,025
Iowa	431,500	1,098,970	1,424,352	1,402,178	1,098,610
Missouri	202,650	385,790	449,022	447,351	428,227
North Dakota	101,450	267,780	226,714	230,250	204,598
South Dakota	88,700	278,880	372,004	370,946	295,725
Nebraska	161,850	416,860	617,930	599,418	560,973
Kansas	163,770	295,870	482,596	447,586	487,122
West North Central	1,296,080	3,199,690	4,126,402	4,056,187	3,605,280
Delaware	6,500	8,990	8,695	9,469	11,841
Maryland	29,580	49,230	50,422	54,980	64,825
District of Columbia	290	340	304	354	642
Virginia	24,000	61,600	79,709	87,117	88,865
West Virginia	8,210	15,960	18,570	20,155	24,283
North Carolina	18,960	56,580	78,606	90,866	104,979
South Carolina	20,530	51,220	68,735	77,214	67,507
Georgia	28,800	83,840	109,060	123,305	100,845
Florida	4,380	19,710	25,508	28,436	45,140
South Atlantic	141,250	347,470	439,609	491,896	503,927
Kentucky	40,510	104,100	94,549	103,798	97,668
Tennessee	26,850	83,130	85,857	96,711	87,313
Alabama	24,880	55,450	66,410	69,488	83,764
Mississippi	31,320	77,420	109,562	111,500	96,864
East South Central	123,560	320,100	356,378	381,497	365,609
Arkansas	22,200	76,870	97,809	103,464	85,577
Louisiana	19,090	41,250	57,910	61,760	61,379
Oklahoma	77,680	188,890	218,963	228,513	214,033
Texas	172,240	396,670	485,587	507,515	543,951
West South Central	291,210	703,680	860,269	901,252	904,940
Montana	19,620	154,940	116,616	104,862	129,200
Idaho	24,270	115,350	107,355	100,033	106,908
Wyoming	7,820	32,970	43,364	40,922	42,948
Colorado	41,800	138,400	153,727	144,464	146,462
New Mexico	4,810	23,670	28,784	26,900	30,729
Arizona	4,880	31,790	29,545	29,006	28,743
Utah	7,170	35,550	39,152	36,367	46,273
Nevada	3,340	11,880	15,244	13,997	14,737
Mountain	113,710	544,550	533,787	496,551	546,000
Washington	45,040	116,740	121,371	120,523	131,299
Oregon	34,950	91,090	105,503	110,875	116,805
California	22,080	425,460	442,868	460,511	548,421
Pacific	202,070	633,290	669,742	691,909	796,525
United States	3,320,470	7,857,700	9,360,620	9,468,526	9,241,390

[1] Revised.
[2] Preliminary. The figures for some States are subject to considerable revision.

Bureau of Agricultural Economics.

TABLE 482.—*Agricultural loans from selected Federal and other agencies, outstanding at close of year, 1917–34*

End of year	Farm-mortgage loans by—					Federal intermediate credit bank loans to—		Production credit associations	Regional agricultural credit corporations [1]	Emergency crop loan offices [1]
	Federal land banks [1]	Land bank commissioner [1]	Joint-stock land banks [1]	Loans of 39 life insurance companies [2]	Member banks [3]	Cooperative association [1]	Financing agencies [1]			
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
1917	30									
1918	156		8							
1919	294		60							
1920	350		78							
1921	433		85							
1922	639		219							
1923	800		393	1,335		34	9			
1924	928		446	1,452		44	19			
1925	1,006		546	1,523		54	26			1
1926	1,008		632	1,588	489	53	40			1
1927	1,156		667	1,618	478	32	44			1
1928	1,194		605	1,606	444	36	45			1
1929	1,198		585	1,591	388	26	50			7
1930	1,188		553	1,554	387	64	66			8
1931	1,163		530	1,512	359	45	75			60
1932	1,117		409	1,402	356	10	83		24	89
1933	1,214	71	354	1,234	318	15	61	[4]	145	90
1934	1,896	617		950	262	34	56	61	87	[5] 110

[1] Farm Credit Administration. Beginning 1928, loans from joint-stock land banks in receivership not included.

[2] Association of Life Insurance Presidents. Reports cover operations of 39 companies representing 82 percent of the admitted assets of all legal reserve life companies in the United States.

[3] Federal Reserve Board.

[4] Less than $27,000

[5] Includes $32,000,000 drought loans.

Bureau of Agricultural Economics.

TABLE 483.—*Selected interest and discount rates on current loans, and bond yields, 1917–34*

Year	12 Federal land banks' rates to borrowers [1]	12 Federal intermediate credit banks' loan and discount rates [1]		Yield on Federal land bank bonds	Rates on commercial paper (4–6 months average) [2]	Federal Reserve bank discount rates, New York [2]
		Loans	Discounts			
	Average	*Average*	*Average*	*Average*	*Average*	*Range*
1917	5.05			4.33	4.74	4 –4½
1918	5.45			4.39	5.86	4½–4¾
1919	5.50			4.22	5.42	4¾
1920	5.50			5.14	7.46	4¾–7
1921	5.88			5.11	6.56	4½–7
1922	5.71			4.50	4.48	4 –4½
1923	5.50	5.50	5.50	4.39	5.01	4 –4½
1924	5.50	5.12	5.33	4.55	3.87	3 –4½
1925	5.46	4.59	5.04	4.34	4.03	3 –3½
1926	5.30	4.70	4.90	4.27	4.34	3½–4
1927	5.11	4.51	4.73	4.08	4.10	3½–4
1928	5.05	4.81	4.91	4.26	4.85	3½–5
1929	5.32	5.56	5.61	4.78	5.84	4½–6
1930	5.63	4.53	4.54	4.70	3.58	2½–4½
1931	5.63	4.08	4.08	5.34	2.63	1½–3½
1932	5.61	4.23	4.23	5.59	2.73	2½–3½
1933	5.30	3.10	3.10	5.43	1.72	2 –3½
1934	5.00	2.29	2.29	3.68	1.01	1½–2

[1] Farm Credit Administration. Figures for the Federal land banks are rates to borrowers through national farm loan associations. Each Federal land bank district or Federal intermediate credit bank district is given equal weight in computing the respective rates for these 2 types of credit, and the rate for each district is weighted by the number of days in force. Beginning May 1933, rates payable by borrowers on new Federal land bank loans were 2 percent less than the contract rate cited, for a period of 5 years, as provided by the Emergency Farm Mortgage Act.

[2] Federal Reserve Board.

Bureau of Agricultural Economics.

TABLE 484.—*Studies of farm family living*

[Data from 1,663 families in 10 States for one year in the period 1928–34][1]

State, county, and locality	Key[2]	Year of study	Families studied	Average size of family	Average value of family living	Average value of goods and services furnished by the farm				Average expenditures for goods and services purchased						Average savings	
						Food	Housing	Other	Total	Food	Clothing	Household operation[3]	Transportation	Other	Total	Life insurance	Other
			Number	*Persons*[8]	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
New York: Chautauqua, Niagara, Yates	1S	1928–29	240	3.4	[4]	[4]	[4]	[4]	[4]	317	183	109	[5]	318	927	[4]	[4]
Ohio: scattered counties	1R	1933	70	4.1	[4]	[6] 143	[4]	[6] 14	[4]	144	87	99	[5]	233	563	[7]	[7] 81
Illinois: scattered counties	1R	1933–34	167	[8] 3.7	1,385	[9] 309	[10] 229	[9] 20	558	147	101	100	[11] 82	249	679	113	35
Minnesota:																	
8 southeastern counties	2R	1933	68	[8] 3.8	979	[12] 166	[12] 138	[12] 35	339	200	86	65	[11] 50	175	576	[7]	[7] 64
7 northern counties	1R	1933–34	27	[8] 3.5	757	[12] 155	[12] 93	[12] 35	283	180	65	32	[11] 36	104	417	[7]	[7] 57
Iowa: east-central and north-central sections	1R	1933	17	[4]	[4]	[6] [13] 202	[4]	[13]	[4]	125	76	61	[11] 88	250	600	119	18
Nebraska: scattered counties	1R	1933	164	4.0	908	[6] 149	[14] 159	[6] 23	331	131	93	89	53	125	491	[7]	[7] 86
South Carolina: 6 counties	1R	1932–33	[15] 46	4.5	958	[9] 284	[16] 161	[9] 28	473	99	75	64	[5]	204	442	34	9
Georgia:																	
Southern Piedmont section	1S	1931	[17] 98	4.0	[18] 874	[6] 375	[16] 99	[6] 57	531	78	47	43	[11] 15	130	313	[19] 30	[4]
Do	1S	1932	[17] 98	4.0	[18] 712	[6] 296	[16] 100	[6] 40	436	67	36	34	[11] 16	97	250	[19] 26	[4]
Oklahoma: Alfalfa, Kingfisher, Logan	1S	1932–33	562	[4]	[4]	[4]	[4]	[4]	[4]	139	69	32	[11] 75	109	424	[7]	[7] 186
Washington: scattered counties	1R	1933	106	4.2	[4]	[6] 289	[4]	[6] 24	[4]	178	98	84	[11] 86	298	744	[7]	[7] 126

[1] This table is a supplement to table 475, 1933 Yearbook, and to table 484, 1934 Yearbook, and includes data from recent studies and other studies not available at the time of publication of the 1933 and 1934 Yearbooks.

[2] The numbers indicate the agency which obtained the data, and the letters indicate the method used in obtaining the data, as follows: 1, State university, agricultural college, or agricultural experiment station; 2, State university in cooperation with Bureau of Agricultural Economics, U. S. Department of Agriculture; S, schedule method; R, record or account-book method.

[3] Includes expenditures for fuel, light, household supplies, and hired help; in some cases includes also those for laundry done outside, telephone, postage, express and freight, insurance on furniture, dry-cleaning and pressing, moving charges, interest on family debts, ice, and water.

[4] Not included in this report.
[5] Not given separately.
[6] Evaluated at farm prices.
[7] Life insurance included with other savings.
[8] Size of family in adult-equivalent units.
[9] Evaluated at retail prices.
[10] Evaluated at 10 percent of estimated value of house minus cash expenditures for housing.
[11] Automobile only.
[12] Basis of valuation not given.
[13] Value of fuel furnished included with value of food furnished.
[14] Evaluated at 9 percent of estimated value of house.
[15] Includes 1 family not operating a farm.
[16] Evaluated at 10 percent of estimated value of house.
[17] Schedules from identical families for consecutive years.
[18] Includes life insurance but no other savings.
[19] Includes health insurance.

Bureau of Home Economics.

TABLE 485.—*Preliminary summary of results of the 1934 cotton production-adjustment program of the Agricultural Adjustment Administration, by States*

[Statement as of Jan. 11, 1935]

State	Contracts	Adjusted average base acreage	Adjusted average production	Rented acres	Average yield on adjusted contracts	Farm allotments	Estimated rental payments	Estimated parity payments	Estimated total payments
	Number	*Acres*	*1,000 pounds*	*Acres*	*Pounds*	*1,000 pounds*	*Dollars*	*Dollars*	*Dollars*
Alabama	126,048	3,282,610	586,657	1,288,103	179	234,663	8,069,965	2,346,630	10,416,595
Arizona	1,845	158,025	55,011	62,843	348	22,004	765,428	220,040	985,468
Arkansas	91,645	3,382,045	651,408	1,313,785	193	260,563	8,874,618	2,605,630	11,480,248
California	1,865	161,012	77,413	61,760	481	30,965	1,039,730	309,650	1,349,380
Florida	6,512	109,838	16,005	43,280	146	6,402	221,161	64,020	285,181
Georgia	107,054	3,108,366	572,040	1,199,524	184	228,816	7,724,935	2,288,160	10,013,095
Kansas	20	815	116	320	142	46	1,590	460	2,050
Kentucky	292	13,754	3,757	5,248	273	1,503	50,145	15,030	65,175
Louisiana	56,343	1,877,342	360,962	727,831	192	144,385	4,891,024	1,443,850	6,334,874
Mississippi	95,577	3,883,099	737,062	1,471,131	190	294,825	9,783,021	2,948,250	12,731,271
Missouri	8,792	379,819	110,971	145,712	292	44,388	1,489,177	443,880	1,933,057
New Mexico	2,156	120,234	43,292	44,175	360	17,317	556,605	173,170	729,775
North Carolina	70,681	1,311,106	327,492	501,117	250	130,997	4,384,774	1,309,970	5,694,744
Oklahoma	89,113	3,300,561	487,276	1,277,140	148	194,910	6,615,585	1,949,100	8,564,685
South Carolina	71,526	1,879,917	402,739	712,585	214	161,096	5,337,262	1,610,960	6,948,222
Tennessee	39,182	1,022,153	218,717	392,237	214	87,487	2,937,855	874,870	3,812,725
Texas	236,391	14,191,396	2,041,940	5,333,019	144	816,776	26,878,416	8,167,760	35,046,176
Virginia	4,541	60,640	16,727	23,472	276	6,691	226,740	66,910	293,650
Total	1,009,583	38,242,732	6,709,585	14,603,282	175	2,683,834	89,848,031	26,838,340	116,686,371

Agricultural Adjustment Administration.

Data on contracts as approved by State boards of review; compiled from forms No. 13–A. Information on payments estimated from contract data; rental at the rate of 3½ cents per pound on lint which would have been produced on rented land, parity payment at the rate of 1 cent per pound on 40 percent of average base production (approximately the portion grown for domestic consumption). All totals shown may be reduced to some extent by contract cancellations.

TABLE 486.—*State quotas of tax-exempt cotton under provisions of the Bankhead Act, 1934, administered by the Agricultural Adjustment Administration*

State	5-year average production, 1928–32		Allotment in terms of net lint	Allotment in 478-pound net-weight bales	Official estimated production, 1934	Allotments in excess of production	Production in excess of allotment
	478-pound net-weight bales	Net lint					
	Bales	*Pounds*	*Pounds*	*Bales*	*Bales*	*Bales*	*Bales*
Virginia	45,000	21,598,000	15,211,200	31,823	39,000		7,177
North Carolina	752,000	358,857,000	252,715,200	528,693	650,000		121,307
South Carolina	856,000	408,763,000	287,856,000	602,209	695,000		92,791
Georgia	1,242,000	593,688,000	418,084,800	874,654	995,000		120,346
Florida	35,000	16,757,000	11,798,400	24,683	28,000		3,317
Illinois			328,500	687			
Kansas	11,000	5,061,000	180,500	378	17,000		9,539
Kentucky			3,057,400	6,396			
Tennessee	478,000	228,827,000	161,145,600	337,125	412,000		74,875
Alabama	1,255,000	600,290,000	422,731,200	884,375	965,000		80,625
Mississippi	1,559,000	745,781,000	525,192,000	1,098,728	1,145,000		46,272
Louisiana	745,000	356,376,000	250,963,200	525,028	488,000	37,028	
Texas	4,580,000	2,197,538,000	1,547,539,200	3,237,530	2,395,000	842,530	
Oklahoma	1,109,000	531,228,000	374,097,600	782,631	325,000	457,631	
Arkansas	1,351,000	646,643,000	455,376,000	952,669	875,000	77,669	
New Mexico	90,000	43,234,000	30,446,400	63,695	92,000		28,305
Arizona	128,000	61,454,000	43,276,800	90,537	[1] 110,000		3,463
Total excluding California and Missouri	14,236,000	6,816,095,000	4,800,000,000	10,041,841	9,231,000		
California [2]			100,000,000	209,205	255,000		45,795
Missouri [2]			100,000,000	209,205	245,000		35,795
Grand total			[3]5,000,000,000	[3]10,460,251	9,731,000	[4]1,414,858	[4]669,607

[1] Including 16,000 bales of Pima cotton which is tax free when at least 1½ inches in length and, therefore, requires no allotment.

[2] Section 5 (*a*) of the Bankhead Cotton Act of 1934 provides "That no State shall receive an allotment of less than 200,000 bales of cotton if in any 1 year of 5 years prior to this date the production of the State equaled 250,000 bales." This provision was found to apply to California and Missouri only.

[3] In the Bankhead Cotton Act of 1934 the term "bale" means 500 pounds of lint cotton. Since ordinarily bales contain an average of 478 pounds, allotments are shown as converted to 478-pound net-weight bales.

[4] Producers having excess tax-exemption certificates were able to utilize them extensively in some sections as a form of crop insurance, by selling them to producers whose production was in excess of their allotments. Those certificates not so transferred could be held and exchanged for 1935 tax-exemption certificates in addition to the normal allotments of the owners.

Agricultural Adjustment Administration.

TABLE 487.—*Tobacco adjustment programs under the Agricultural Adjustment Administration, by kinds of tobacco and by States, 1934*

Kind of tobacco and State	Total contracts	Total base acreage	Total base production	Average base acreage per contract	Average reduction from base [1]
Flue-cured, types 11–14:	*Number*	*Acres*	*1,000 lbs.*	*Acres*	*Percent*
Florida	1,038	6,023	4,534	5.80	29
Georgia	12,381	75,870	59,821	6.13	29
North Carolina	73,531	695,852	528,658	9.46	28
South Carolina	13,291	99,380	78,542	7.48	29
Virginia	11,684	94,328	59,747	8.07	26
Total	111,925	971,453	731,302	8.68	28
Fire-cured, types 21–24:					
Kentucky	10,478	65,136	46,804	6.22	25
Tennessee	6,963	65,007	50,968	9.34	25
Virginia	6,308	28,302	20,432	4.49	25
Total	23,749	158,445	118,204	6.67	25
Burley, type 31:					
Alabama	18	205	156	11.40	49
Arkansas	16	60	28	3.58	45
Indiana	2,995	10,110	7,645	3.37	42
Kansas	88	480	425	5.46	41
Kentucky	59,832	305,590	228,199	5.11	40
Missouri	1,059	7,310	7,092	6.91	40
North Carolina	3,969	7,310	5,950	1.84	35
Ohio	5,329	15,860	11,535	2.98	42
Tennessee	28,449	67,435	53,737	2.37	38
Virginia	5,793	10,720	10,144	1.85	35
West Virginia	1,876	5,210	3,044	2.78	45
Total	109,424	430,290	327,955	3.93	40
Maryland, type 32	702	7,139	4,578	10.17	25
Dark air-cured, types 35–37:					
Kentucky	8,668	40,676	33,868	4.69	30
Tennessee	1,034	2,746	2,100	2.66	30
Virginia	376	1,102	819	2.93	30
Total	10,078	44,524	36,787	4.42	30
Cigar-leaf: [2]					
Pennsylvania	4,696	31,188	[3]	6.64	67
New York	375	1,484	[3]	3.96	90
Ohio	5,067	34,906	[3]	6.89	68
Indiana	34	133	[3]	3.91	78
Connecticut	2,158	17,352	[3]	8.04	67
Massachusetts	1,049	7,346	[3]	7.00	70
Vermont	25	132	[3]	5.28	98
New Hampshire	27	124	[3]	4.59	92
Wisconsin	8,558	38,190	[3]	4.46	85
Minnesota	662	1,869	[3]	2.82	91
Illinois	12	38	[3]	3.18	80
Florida	122	1,994	[3]	16.34	27
Georgia	43	746	[3]	17.35	27
Total	22,828	135,502	[3]	5.94	72
Puerto Rican	10,400	53,555	[3]	5.15	32
Total all programs	289,106	1,800,908		6.23	34

[1] Tobacco contracts provide allotments of production as well as acreage, except in the case of cigar-leaf tobacco. This column shows percentage reduction of allotted acreage from base acreage. Since some growers did not grow their full allotted acreage, the total harvested acreage of growers under contract was below the total acreage allotted. The Burley contract permitted choice of a reduction of either 33⅓ or 50 percent; binder and filler cigar-leaf contracts permitted choice of a reduction of 33⅓ or 50 percent or 100 percent. For flue-cured tobacco, an administrative ruling permitted choice of a reduction of 20 percent in lieu of the 30 percent provided in the contract.

[2] Includes all domestic types of cigar-leaf tobacco except types 45 and 61.

[3] Base production not established under cigar-leaf tobacco contracts.

Agricultural Adjustment Administration.

For production in 1934, see statistical tables in earlier portion of this Yearbook, under "Tobacco."

TABLE 488.—*Tobacco, 1934 crop: Proportion of sales to Feb. 1, 1935, covered by tax-payment warrants and tax paid in cash under Kerr-Smith Act*

Class and type	Type No.	Total sales	Percentage of sales for which tax was paid with warrants	Percentage of sales for which tax was paid in cash
		1,000 pounds	*Percent*	*Percent*
Flue-cured:				
Old belt	11	192,267	96.1	3.9
Eastern North Carolina	12	226,263	98.9	1.1
South Carolina belt	13	102,856	99.2	.8
Georgia and Florida	14	35,001	99.5	.5
Total	11–14	556,387	98.0	2.0
Fire-cured:				
Virginia	21	12,422	87.0	13.0
Clarksville and Hopkinsville	22	11,715	81.7	18.3
Paducah	23	11,088	82.2	17.8
Henderson	24	2,155	65.6	34.4
Total	21–24	37,380	82.7	17.3
Burley	31	212,822	79.7	20.3
Dark air-cured:				
One Sucker	35	10,587	52.5	47.5
Green River	36	11,525	84.2	15.8
Total	35–36	22,112	69.0	31.0

Agricultural Adjustment Administration.

Maryland type 32, Virginia sun-cured type 37, and all cigar-leaf types were specifically exempted from the tax on the 1934 crop under the provisions of the Kerr-Smith Act.

TABLE 489.—*Tobacco referenda: Growers' vote on Kerr-Smith Act, December 1934*

Class and type	Type No.	Acreage customarily engaged in production of tobacco	Percentage of land which was voted	Percentage of voted land which was voted in favor of tax for 1935
		Acres	*Percent*	*Percent*
FLUE-CURED				
Virginia	11	89,400	94.7	98.5
North Carolina	11	255,000	97.5	99.0
Total old belt	11	344,400	96.8	98.9
Eastern North Carolina belt	12	336,300	98.2	99.3
North Carolina	13	63,600	98.7	99.7
South Carolina	13	101,200	91.5	99.1
Total South Carolina belt	13	164,800	94.3	99.3
Georgia	14	77,900	91.0	98.4
Florida	14	5,700	76.4	97.8
Total Georgia and Florida belt	14	83,600	90.1	98.4
Total flue-cured	11–14	929,100	96.3	99.1
FIRE-CURED				
Virginia	21	32,200	91.7	94.7
Kentucky	22	43,800	82.1	93.9
Tennessee	22	68,200	76.2	94.4
Total Clarksville and Hopkinsville	22	112,000	78.5	94.1
Kentucky	23	33,700	78.9	91.6
Tennessee	23	5,700	59.6	51.2
Total Paducah	23	39,400	76.1	87.0
Henderson Stemming (Kentucky)	24	4,800	57.1	79.8
Total fire-cured	21–24	188,400	79.7	92.6
BURLEY				
Ohio	31	18,300	87.0	93.1
Indiana	31	11,600	87.0	90.0
Missouri	31	8,000	90.6	92.2
Kansas	31	700	97.3	96.4
Virginia	31	11,100	93.5	95.7
West Virginia	31	6,000	90.5	93.0
North Carolina	31	8,600	89.6	96.9
Kentucky	31	352,100	91.0	95.9
Tennessee	31	77,400	88.0	96.6
Total Burley	31	493,800	90.3	95.7
DARK AIR-CURED				
Indiana	35	1,300	46.2	84.0
Kentucky	35	19,600	89.6	92.2
Tennessee	35	3,300	95.3	82.0
Total One Sucker	35	24,200	87.6	90.6
Green River (Kentucky)	36	30,600	82.0	94.6
Virginia sun-cured	37	4,200	71.5	89.0
Total dark air-cured	35–37	59,000	83.8	92.5
Total above types	----------	1,670,300	92.2	97.3

Agricultural Adjustment Administration.

All growers having an interest in the 1934 crop of tobacco of the above types were eligible to vote upon the question, "Do you favor a tax on the sale of ..... tobacco for the crop year, beginning May 1, 1935, as provided in the Kerr-Smith Act?" Growers were required to state their 1934 acreage and votes were tabulated according to the acreage voted. If any person having an interest in the 1934 crop voted "No", the entire acreage in which that person had an interest was counted as "not favoring the tax", regardless of how other persons having an interest in the same land voted. Referenda for Maryland type 32 and cigar-leaf types had not been conducted at the time this table was prepared.

TABLE 490.—*Preliminary summary of results of wheat acreage-reduction campaign for 1934 and 1935 of the Agricultural Adjustment Administration, by States*

[Revised to Dec. 1, 1934]

State	Acreage			Production		Estimated amount of adjustment payments [4]	
	Official seeded acreage, average 1930–32 [1]	Base acreage of contract signers, average 1930–32 [2]	Percentage of official acreage	Official production, average 1928–32 [1]	Base production of contract signers, average 1928–32 [3]	1933	1934
	Acres	*Acres*	*Percent*	*Bushels*	*Bushels*	*Dollars*	*Dollars*
Alabama	4,000			34,400			
Arizona	28,300	6,152	22	602,400	140,528	21,000	22,000
Arkansas	30,000	1,786	6	247,200	17,811	3,000	3,000
California	677,000	439,102	65	11,046,400	8,116,619	1,196,000	1,280,000
Colorado	1,754,700	1,457,239	83	17,111,200	14,240,773	2,142,000	2,227,000
Delaware	94,300	36,730	39	1,799,600	710,759	110,000	111,000
Georgia	52,000	3,780	7	510,400	54,878	8,000	9,000
Idaho	1,142,000	978,019	86	27,028,400	22,512,449	3,399,000	3,531,000
Illinois	1,970,700	998,918	51	32,532,400	17,226,250	2,492,000	2,698,000
Indiana	1,652,300	746,759	45	26,522,200	12,761,516	1,882,000	1,999,000
Iowa	369,300	140,090	38	7,445,200	3,224,668	431,000	504,000
Kansas	13,516,000	12,086,527	89	177,431,200	157,812,906	24,398,000	24,759,000
Kentucky	258,700	138,338	53	3,002,000	1,723,470	249,000	271,000
Maine	2,300			51,400			
Maryland	439,300	289,904	66	8,647,800	5,306,718	796,000	831,000
Michigan	719,000	245,022	34	15,522,600	5,631,944	828,000	882,000
Minnesota	1,367,700	844,519	62	20,946,200	12,463,549	1,850,000	1,947,000
Mississippi				2,600			
Missouri	1,535,700	696,075	45	20,362,400	10,810,269	1,534,000	1,690,000
Montana	4,445,700	4,316,828	94	45,167,400	41,922,669	6,331,000	6,597,000
Nebraska	3,674,300	2,639,602	72	56,537,600	40,082,362	5,944,000	6,205,000
Nevada	15,000	8,514	57	377,600	206,677	30,000	32,000
New Jersey	51,000	3,562	7	1,165,200	78,450	11,000	12,000
New Mexico	479,700	386,571	81	4,148,000	3,295,583	497,000	520,000
New York	219,700	12,365	6	4,411,200	295,700	44,000	46,000
North Carolina	333,700	21,755	7	3,653,400	351,257	53,000	55,000
North Dakota	10,368,000	9,919,175	94	102,903,000	95,624,651	14,677,000	14,974,000
Ohio	1,745,300	613,009	35	30,479,800	11,206,137	1,718,000	1,754,000
Oklahoma	4,532,700	3,524,741	78	55,145,200	44,402,802	6,840,000	6,956,000
Oregon	1,027,000	845,937	82	21,205,000	17,274,962	2,662,000	2,734,000
Pennsylvania	954,700	89,435	9	17,387,200	1,670,918	254,000	262,000
South Carolina	57,000			575,200			
South Dakota	3,895,300	3,511,345	90	37,631,800	33,559,850	5,127,000	5,266,000
Tennessee	248,700	70,904	29	2,918,200	876,394	128,000	137,000
Texas	4,346,300	3,674,186	85	41,082,600	35,062,679	5,422,000	5,500,000
Utah	272,300	206,420	76	5,553,800	4,396,105	660,000	687,000
Vermont	600			15,000			
Virginia	600,700	210,241	35	9,220,400	3,639,109	539,000	570,000
Washington	2,471,300	1,937,500	78	42,882,200	37,255,007	5,802,000	5,864,000
West Virginia	113,000	32,058	28	1,642,600	507,766	76,000	79,000
Wisconsin	100,700	13,726	14	1,869,000	264,935	39,000	41,000
Wyoming	360,300	244,513	68	3,753,000	2,900,832	407,000	453,000
Not allocated to individual States							92,000
Total	65,926,300	51,391,347	78	860,570,400	647,629,952	98,600,000	101,600,000

[1] Official estimates of the Bureau of Agricultural Economics.

[2] Some counties and individuals in numerous counties used 4-year and 5-year bases, which are included in this figure.

[3] Base production on contracts adjusted to the 5-year base, 1928–32.

[4] Estimated payments at 29 cents per bushel on 54 percent of the base production.

Agricultural Adjustment Administration.

TABLE 491.—*Cane sugar, raw: Refiners' stocks, receipts, meltings and direct-consumption deliveries, 1934, compiled in the administration of the Jones-Costigan Act by the Agricultural Adjustment Administration*

Source of supply	Jan. 1, 1934, stocks	Receipts [1]	Meltings	Deliveries for direct consumption	Lost by fire, etc.	Dec. 31, 1934, stocks
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Cuba	82,080	1,489,842	1,280,182	7,128	896	283,716
Hawaii	47,099	951,370	927,381	6,078	1	65,009
Puerto Rico		723,417	717,055	[2] 197	17	6,148
Philippine Islands	12,327	1,197,531	1,039,871	[2] 3,517	8	166,462
Continental United States	33,469	171,381	184,760	220		19,870
Virgin Islands		5,095	5,095			
Other areas	2,812	24,977	27,223	12		554
Miscellaneous, sweepings, etc.	2	800	801	1		
Total	177,789	4,564,413	4,182,368	17,153	922	541,759

[1] Receipts are of sugar arriving in the ports of the United States, regardless of whether they have been imported (i. e., entered through the customs) or not.
[2] Includes small items which may not have gone directly into consumption.

Agricultural Adjustment Administration.
All figures are preliminary, and include all overquota raw sugars held by refiners. Data compiled from reports submitted by 16 companies representing 22 refiners. The table includes all refineries in the United States except 3 Louisiana refineries melting only Louisiana raw sugars, the aggregate output of which is relatively small.

TABLE 492.—*Sugar, refined cane and beet: Stocks, production, and distribution by United States refiners and processors, 1934, compiled in the administration of the Jones-Costigan Act by the Agricultural Adjustment Administration*

Manufacturing agency	Jan. 1, 1934, stocks	Production	Deliveries	Dec. 31, 1934, stocks
	Short tons	*Short tons*	*Short tons*	*Short tons*
Cane sugar refineries	369,234	3,950,020	[1] 4,016,284	302,970
Beet sugar factories	1,341,404	1,178,173	[2] 1,459,408	1,060,169
Total	1,710,638	5,128,193	[3] 5,475,692	1,363,139

[1] Includes sales for export. The Department of Commerce reported exports of 136,481 tons of refined sugar during 1934.
[2] Larger than actual deliveries by a small quantity representing losses in transit, through reprocessing, etc. Includes delivery of 4,500 tons to the Federal Surplus Relief Corporation.
[3] Equivalent to 5,858,990 short tons of 96° raw sugar.

Agricultural Adjustment Administration.
All figures are preliminary and were compiled from reports submitted by refiners and processors. Cane sugar refined by 3 Louisiana refineries, the aggregate output of which is relatively small, is not included in this table.

TABLE 493.—*Sugar: Receipts for direct consumption from specified areas, 1934*

Source of supply	Quantity	Source of supply	Quantity
	Short tons [1]		*Short tons* [1]
Hawaii	20,362	Cuba	[2] 395,374
Philippine Islands	64,292		
Puerto Rico	93,620	Total	573,648

[1] Refined sugar equivalent.
[2] Quota sugar upon which duty has been paid.

Agricultural Adjustment Administration.
All figures are preliminary and were compiled in the administration of the Jones-Costigan Act.

TABLE 494.—*Preliminary summary of results of 1934 corn-hog adjustment program of the Agricultural Adjustment Administration, by States*

[Statement to Jan. 1, 1935]

State and division	Corn-hog contracts accepted for examination and audit	Contract signers' base corn acreage as adjusted, average 1932–33	Acreage contracted	Contracted acreage as a percentage of contract signers' adjusted base acreage	Average appraised yield per acre on contracted acres as finally adjusted	Estimated amount of benefit payments for corn-acreage adjustment under 1934 contract	Contract signers' number (adjusted) of hogs produced average 1932–33	Estimated amount of benefit payments for adjustment of hog production under 1934 contract
	Number	*Acres*	*Acres*	*Percent*	*Bushels*	*Dollars*	*Number*	*Dollars*
Maine	7	30					1,340	5,000
New Hampshire	184	438	5	1.1	60.0	90	11,669	43,800
Vermont	545	2,270					20,879	78,300
Massachusetts	234	504	4	.8	36.0	43	126,212	473,300
Rhode Island	10	15					1,440	5,400
Connecticut	92	433	20	4.6	34.7	200	15,611	58,500
New York	1,877	13,769	590	4.3	33.2	5,900	85,009	318,800
New Jersey	307	4,674	1,115	23.9	40.6	13,600	105,584	395,900
Pennsylvania	2,664	56,534	12,282	21.7	38.4	141,500	103,966	389,900
North Atlantic	5,920	78,667	14,016	17.8	38.4	161,333	471,710	1,768,900
Ohio	64,404	1,997,868	452,308	22.6	37.3	5,061,300	3,319,210	12,447,000
Indiana	83,433	3,118,471	715,620	22.9	35.8	7,685,800	4,698,732	17,620,200
Illinois	120,808	7,094,632	1,625,469	22.9	36.3	17,701,400	6,006,075	22,522,800
Michigan	24,307	424,702	79,197	18.6	32.6	774,500	720,297	2,701,100
Wisconsin	42,945	961,947	157,337	16.4	36.0	1,699,200	1,647,231	6,177,100
E. North Central	335,897	13,597,620	3,029,931	22.3	36.2	32,922,200	16,391,545	61,468,200
Minnesota	79,574	3,586,534	802,455	22.4	31.7	7,631,300	3,625,619	13,596,100
Iowa	173,565	10,576,079	2,472,720	23.4	38.6	28,634,100	12,067,815	45,254,300
Missouri	107,998	4,313,855	1,080,114	25.0	25.5	8,262,900	4,577,179	17,164,400
North Dakota	19,726	794,468	173,794	21.9	17.4	907,200	584,211	2,190,800
South Dakota	59,164	4,109,333	1,045,045	25.4	17.0	5,329,700	2,357,207	8,839,500
Nebraska	88,600	7,878,940	1,860,218	23.6	23.8	13,282,000	4,513,236	16,924,600
Kansas	78,671	4,429,194	1,084,502	24.5	18.9	6,149,100	2,919,209	10,947,000
W. North Central	607,298	35,688,403	8,518,848	23.9	27.5	70,196,300	30,644,476	114,916,700
Delaware	230	7,559	1,890	25.0	33.1	18,800	5,364	20,100
Maryland	3,108	90,887	21,229	23.4	36.2	230,500	89,516	335,700
Virginia	10,551	231,228	54,900	23.7	29.4	434,200	295,316	1,107,400
West Virginia	2,169	44,999	10,324	22.9	34.9	108,100	64,514	241,900
North Carolina	4,091	107,977	23,378	21.7	24.3	170,400	153,817	576,800
South Carolina	1,644	94,165	22,218	23.6	16.3	108,600	79,268	297,300
Georgia	565	43,329	9,592	22.1	11.1	31,900	39,416	147,800
Florida	1,597	82,081	20,658	25.2	14.2	88,000	62,964	236,100
S. Atlantic	23,955	702,225	164,189	23.4	25.2	1,240,500	790,175	2,963,100
Kentucky	23,156	779,349	193,588	24.8	26.6	1,544,800	776,373	2,911,400
Tennessee	23,610	716,832	179,103	25.0	24.9	1,337,900	610,396	2,289,000
Alabama	2,833	123,543	28,219	22.8	13.2	111,700	96,694	362,600
Mississippi	256	16,553	3,886	23.5	18.5	21,600	12,747	47,800
Arkansas	11,034	200,056	45,424	22.7	20.7	282,000	247,221	927,100
Louisiana	481	23,102	5,676	24.6	16.9	28,800	11,943	44,800
Oklahoma	36,940	996,346	231,567	23.2	17.3	1,201,800	1,082,259	4,058,500
Texas	32,002	823,996	207,410	25.2	18.2	1,132,500	997,265	3,739,700
S. Central	130,312	3,679,777	894,873	24.3	21.1	5,661,100	3,834,898	14,380,900
Montana	4,304	55,310	14,195	25.7	16.3	69,400	153,184	574,400
Idaho	9,544	20,590	2,603	12.6	34.7	27,100	359,172	1,346,900
Wyoming	3,067	163,597	41,574	25.4	14.3	178,400	74,993	281,200
Colorado	13,120	1,159,943	309,900	26.7	12.2	1,134,200	421,042	1,578,900
New Mexico	2,574	130,810	35,343	27.0	19.9	202,500	65,592	246,000
Arizona	334	2,435	536	22.0	23.7	3,800	20,382	76,400
Utah	2,752	3,466	343	9.9	25.0	2,600	61,771	231,600
Nevada	284	457	115	25.2	56.8	2,000	16,883	63,300
Washington	5,029	3,059	607	19.8	36.3	6,600	212,260	796,000
Oregon	6,123	21,372	1,714	8.0	35.9	18,500	229,165	859,400
California	4,781	5,776	1,209	20.9	34.2	12,400	571,827	2,144,400
Western	51,912	1,566,815	408,139	26.0	13.5	1,657,500	2,186,271	8,198,500
United States	1,155,294	55,313,507	13,029,996	23.6	28.6	111,838,933	54,319,075	203,696,300

Agricultural Adjustment Administration.

TABLE 495.—*Temperature: Normal[1] and 1934, by months, at selected points in the United States*

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
Greenville, Maine	12.2	10.3	13.3	4.6	24.9	23.2	36.5	39.4	49.6	52.4	59.0	58.4	65.0	64.0	62.2	59.6	52.4	59.2	44.9	41.1	31.3	34.6	18.6	14.2	39.2	38.4
Burlington, Vt	18.8	16.4	19.4	5.6	29.1	27.2	43.3	43.6	56.5	56.8	65.7	65.4	70.3	70.1	67.9	64.7	60.3	63.6	49.2	44.8	36.3	39.1	24.4	17.4	45.1	42.9
Boston, Mass	27.9	29.6	28.8	17.5	35.6	35.1	46.4	48.0	57.1	60.6	66.5	66.9	71.7	73.2	69.9	67.3	63.2	64.6	53.6	49.6	42.0	45.6	32.5	28.4	49.6	48.9
Buffalo, N. Y	24.6	27.5	24.3	11.6	31.1	28.6	42.8	42.8	54.6	56.8	64.4	67.7	69.8	71.8	68.6	66.8	62.4	65.8	51.9	50.4	39.4	43.4	29.8	27.4	47.0	46.7
Canton, N. Y	16.3	16.4	18.0	3.4	27.7	26.1	42.5	42.1	56.2	56.5	65.1	65.8	68.9	70.2	66.6	64.4	59.3	63.5	47.2	44.0	33.9	39.4	22.7	14.4	43.7	42.2
Trenton, N. J	30.5	34.2	30.7	18.5	39.1	37.0	49.8	50.2	61.1	63.2	69.5	73.5	74.5	76.6	73.0	70.5	66.9	68.2	55.6	53.2	44.4	48.1	34.4	33.3	52.5	52.2
Pittsburgh, Pa	30.7	33.8	32.3	19.7	39.6	36.5	51.2	50.4	62.4	64.6	70.7	75.9	74.6	77.6	72.9	70.7	66.4	68.4	55.7	54.6	43.2	46.8	34.2	32.9	52.8	52.7
Scranton, Pa	26.6	30.1	27.3	15.4	35.7	34.6	48.1	48.3	59.4	62.0	67.8	71.3	71.7	74.4	69.8	67.1	62.9	65.8	51.9	49.5	40.5	45.6	30.7	29.1	49.4	49.4
Cincinnati, Ohio	30.3	36.0	32.8	25.2	40.9	39.4	52.4	53.5	63.1	66.7	71.2	78.1	75.1	82.2	73.6	76.2	67.1	69.8	55.7	57.8	42.5	48.4	33.4	33.4	53.2	55.6
Cleveland, Ohio	26.5	33.1	27.4	17.2	34.6	32.2	46.2	47.3	57.9	62.6	67.1	73.6	71.4	76.0	70.0	70.0	63.9	67.1	53.6	53.7	40.9	47.0	31.2	31.0	49.2	50.9
Evansville, Ind	33.5	38.9	36.3	31.0	45.9	42.2	56.7	57.4	66.7	70.2	75.1	80.4	78.9	83.1	77.4	77.7	70.7	68.7	59.4	62.4	46.6	50.9	37.1	36.0	57.0	58.2
Indianapolis, Ind	28.4	34.0	31.1	23.5	40.0	35.3	52.1	52.1	62.9	67.4	71.6	78.6	75.7	81.6	73.7	74.2	66.9	66.5	55.7	58.0	42.3	46.7	32.2	30.2	52.7	54.0
Fort Wayne, Ind	26.1	32.0	28.5	18.7	36.6	31.8	48.8	47.4	59.4	64.9	69.1	76.6	74.0	79.4	71.4	72.0	65.3	65.8	53.5	54.1	40.7	44.4	29.9	26.6	50.3	51.1
Chicago, Ill	23.7	32.3	26.3	22.9	35.3	32.9	46.9	48.6	57.5	65.2	67.3	71.6	72.5	76.6	71.6	72.4	65.2	64.2	54.0	56.0	40.1	45.8	28.8	26.2	49.1	51.2
Peoria, Ill	23.1	31.7	25.9	23.8	37.0	34.1	50.9	51.6	61.7	68.7	70.9	79.2	75.4	81.0	72.5	74.4	64.3	63.8	52.0	57.4	37.5	46.0	28.1	26.0	49.9	53.1
Cairo, Ill	34.9	40.9	38.5	34.5	47.2	44.4	58.1	59.4	68.4	70.9	76.3	80.4	79.6	83.5	77.8	79.0	71.5	68.6	60.4	63.7	47.3	52.6	37.8	37.6	58.2	59.6
Grand Rapids, Mich	24.5	31.0	23.7	15.8	33.4	29.0	47.0	44.2	58.0	63.6	67.8	73.2	72.3	76.8	69.7	69.8	62.7	64.1	51.2	52.4	38.4	44.2	28.5	26.4	48.1	49.2
Alpena, Mich	19.1	25.4	18.0	8.8	25.5	22.0	38.6	38.0	50.5	53.9	60.4	62.6	65.9	66.8	64.1	61.7	57.6	58.2	47.1	47.0	34.4	39.7	24.8	22.9	42.2	42.2
Marquette, Mich	16.3	23.3	16.3	11.0	24.8	22.0	37.8	36.9	49.0	54.2	58.9	59.6	64.9	63.8	63.8	61.0	57.5	54.0	46.7	48.0	33.3	36.8	22.6	21.9	41.0	41.0
Madison, Wis	16.7	26.6	19.1	18.5	30.6	29.1	45.4	45.8	57.6	65.7	67.2	73.1	72.1	75.3	69.8	69.4	62.4	60.6	50.3	53.8	35.2	41.6	22.8	20.2	45.8	48.3
Green Bay, Wis	15.7	25.6	17.4	14.4	28.6	26.4	43.2	42.2	54.9	61.3	64.9	69.2	70.0	71.1	67.7	65.6	60.4	59.1	48.5	51.2	34.0	39.8	22.3	20.4	44.0	45.5
Duluth, Minn	7.9	15.4	11.4	9.4	23.7	20.6	37.0	37.4	47.3	53.0	57.2	59.4	63.9	65.4	62.6	61.4	55.1	52.8	44.1	47.2	30.0	34.2	15.9	10.6	38.0	38.9
Minneapolis, Minn	12.7	21.2	15.9	18.6	29.6	29.0	46.4	46.0	57.7	68.7	67.5	73.0	72.3	76.2	69.9	70.1	61.4	57.2	48.9	54.0	32.4	38.8	19.6	15.0	44.5	47.3
Des Moines, Iowa	20.1	28.4	23.7	26.6	35.9	35.0	50.1	51.8	61.3	71.1	70.6	79.6	75.4	82.6	73.1	75.8	65.6	61.4	53.4	58.2	38.4	42.9	26.0	22.8	49.5	53.0
Dubuque, Iowa	19.1	28.4	22.2	21.6	34.0	32.8	48.6	49.6	60.3	69.0	69.4	77.3	74.1	77.5	71.7	71.0	64.0	61.9	51.9	56.0	37.0	43.3	24.7	21.1	48.1	50.8
St. Louis, Mo	31.1	37.8	34.8	31.4	44.1	40.8	56.1	57.0	67.0	71.2	75.0	82.6	78.8	87.2	77.5	80.0	70.5	66.6	58.8	63.2	45.4	50.4	34.9	33.4	56.2	58.5
St. Joseph, Mo	27.6	34.0	32.3	32.3	42.2	40.6	54.3	56.8	64.0	70.8	74.1	81.6	78.9	87.3	76.7	81.0	69.2	63.5	56.6	61.9	43.4	46.8	30.8	29.0	54.2	57.1
Springfield, Mo	33.5	37.8	35.2	35.1	45.2	42.2	56.0	56.8	64.5	68.2	72.5	79.4	76.8	85.4	75.7	80.8	68.9	65.8	58.2	63.3	45.7	49.8	36.2	34.0	55.7	58.2
Bismarck, N. Dak	7.8	19.8	10.3	23.6	24.2	28.2	42.1	45.4	54.5	65.6	63.7	66.0	69.8	74.2	67.3	69.8	58.1	52.6	44.9	50.9	28.5	35.9	14.7	15.3	40.5	45.6
Devils Lake, N. Dak	1.8	11.6	5.1	14.2	19.8	23.0	38.8	41.0	52.6	61.3	61.9	63.0	67.4	70.5	64.8	66.1	55.9	51.0	42.4	47.1	24.5	32.0	9.5	9.9	37.0	40.9
Pierre, S. Dak	16.0	28.7	18.6	30.0	31.5	34.2	46.8	50.8	58.0	70.9	68.5	73.1	75.3	79.8	72.8	75.6	63.8	59.6	49.8	55.9	33.6	41.2	21.8	23.8	46.4	52.0
North Platte, Nebr	22.9	33.8	26.6	33.0	36.6	38.9	48.6	52.3	58.7	68.9	67.5	75.2	72.9	83.0	70.8	76.1	62.1	59.6	49.7	57.2	36.6	42.0	26.7	28.2	48.3	54.0
Omaha, Nebr	21.9	30.0	25.5	30.0	37.0	37.4	51.2	55.0	62.4	72.9	71.6	79.0	76.7	85.4	74.4	78.6	66.8	62.0	54.3	60.8	38.5	43.8	26.4	25.3	50.6	55.0
Concordia, Kans	26.4	34.0	29.8	33.6	41.0	41.0	53.5	57.1	63.2	70.5	73.0	80.8	78.0	88.4	76.5	82.5	68.3	64.6	55.9	62.4	41.4	46.4	30.7	30.4	53.1	57.6

[1] Normals are based on records of 30 or more years of observations. Normal and 1934 means based on mean of the daily temperature extremes.

TABLE 495.—*Temperature: Normal[1] and 1934, by months, at selected points in the United States*—Continued

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Dodge City, Kans	29.0	36.7	33.2	35.8	42.8	43.9	53.6	56.2	63.5	69.5	72.5	80.0	78.4	87.3	77.7	82.8	69.4	65.6	56.1	62.4	42.6	47.4	32.6	35.4	54.3	58.6
Iola, Kans	29.8	38.4	33.2	37.5	44.5	44.4	56.2	58.6	65.2	68.4	74.1	80.4	78.2	85.8	77.1	84.6	69.8	67.3	57.8	63.2	44.1	50.0	33.9	34.7	55.3	59.4
Washington, D. C	33.4	39.0	35.3	24.6	42.6	41.2	53.3	53.9	63.7	66.5	72.2	77.2	76.8	80.8	75.0	74.1	68.1	70.6	57.4	56.2	45.2	49.6	36.6	37.3	55.0	55.9
Lynchburg, Va	37.5	41.2	40.3	29.8	47.3	43.0	57.3	57.0	67.3	67.2	74.6	76.8	77.5	81.8	75.6	76.4	69.0	71.8	58.5	57.8	47.2	49.6	39.5	39.0	57.6	57.6
Norfolk, Va	40.6	45.6	42.7	32.0	48.2	46.0	56.8	57.6	66.2	67.0	74.4	78.8	78.7	79.8	77.4	77.6	71.6	74.6	62.5	61.4	51.4	54.7	43.1	43.0	59.5	59.8
Parkersburg, W. Va	32.5	36.4	34.2	23.6	42.8	39.4	53.4	53.4	63.8	65.8	71.4	77.2	75.4	79.6	73.9	73.7	67.3	69.6	56.1	55.4	43.8	47.4	35.2	34.2	54.2	54.6
Lexington, Ky	32.9	37.2	35.4	28.4	43.7	40.6	54.3	55.4	64.3	66.5	72.2	77.0	75.9	79.4	74.5	74.6	68.5	69.0	57.4	57.6	44.8	46.6	35.8	35.2	55.0	55.6
Charlotte, N. C	41.2	45.0	43.9	36.0	50.4	47.7	59.8	59.8	68.9	67.7	75.5	77.8	78.4	79.9	77.1	78.6	71.5	74.8	61.7	61.5	50.6	53.6	43.0	42.2	60.2	60.4
Wilmington, N. C	46.5	50.5	47.9	41.2	53.3	52.0	62.0	63.4	70.8	68.2	76.8	78.5	79.1	81.2	77.6	80.2	73.1	76.0	65.3	64.6	56.0	57.6	49.1	47.2	63.1	63.4
Charleston, S. C	49.9	52.6	52.4	46.0	57.4	56.0	64.5	65.8	72.7	71.0	78.9	80.6	81.4	83.9	81.0	82.2	76.6	78.2	67.8	68.7	58.1	59.7	51.7	50.2	66.0	66.2
Greenville, S. C	40.3	44.2	43.3	38.1	49.9	48.5	58.6	60.4	67.2	68.8	74.1	78.2	76.9	81.6	75.8	78.0	70.6	74.3	60.2	63.2	49.6	53.4	42.2	42.8	59.1	61.0
Atlanta, Ga	42.6	45.2	45.3	40.0	52.0	50.4	61.0	60.6	69.9	69.0	76.0	78.0	78.1	80.0	77.0	78.4	72.4	73.8	63.0	64.1	52.1	54.0	44.7	41.4	61.2	61.2
Thomasville, Ga	51.0	54.8	55.0	50.6	60.2	59.5	66.7	68.0	74.0	73.0	79.5	80.3	81.8	81.2	81.0	80.6	76.8	78.0	68.2	71.6	58.5	61.4	52.5	52.8	67.1	67.6
Jacksonville, Fla	55.4	58.0	58.0	54.2	62.6	61.4	68.7	69.5	75.0	74.0	79.9	80.7	82.1	82.5	81.7	82.2	78.3	79.2	71.1	73.0	62.2	64.3	56.3	55.7	69.3	69.6
Miami, Fla	66.5	69.4	67.1	67.4	70.2	70.7	72.8	74.0	76.4	77.7	80.0	80.5	81.0	82.2	81.4	82.1	80.1	81.0	77.0	79.7	71.8	72.6	68.0	68.6	74.4	75.5
Memphis, Tenn	40.9	45.2	44.3	40.2	52.3	49.2	61.8	62.8	70.6	73.1	77.6	81.0	80.7	84.9	79.4	83.4	73.6	72.4	63.3	67.6	51.7	55.7	43.6	42.6	61.6	63.2
Nashville, Tenn	38.6	42.4	41.6	36.2	49.2	47.2	59.0	59.9	68.2	70.0	75.6	78.9	79.1	82.2	77.8	80.2	71.8	70.6	61.0	63.4	49.0	53.0	41.0	39.9	59.3	60.3
Birmingham, Ala	45.1	48.6	48.0	43.8	55.4	53.2	63.3	63.1	71.1	72.1	77.9	79.6	80.2	81.0	79.2	80.2	74.8	74.0	64.8	66.2	53.9	56.2	46.4	44.8	63.3	63.6
Mobile, Ala	51.5	55.2	54.7	51.3	59.7	57.8	66.3	66.9	74.4	74.0	80.3	81.1	81.4	82.2	81.0	81.6	78.1	77.2	69.3	71.4	58.6	62.0	52.2	51.6	67.3	67.7
Meridian, Miss	47.0	50.8	49.6	46.3	57.1	55.2	64.0	65.0	71.3	72.4	78.1	81.1	80.4	81.8	79.5	81.8	74.5	74.9	64.3	68.0	54.2	58.2	47.7	47.8	64.0	65.3
Vicksburg, Miss	48.2	51.4	51.8	49.0	58.5	56.4	65.6	66.2	72.9	73.2	79.0	81.0	81.3	82.5	80.8	83.0	76.3	75.1	66.7	70.6	56.6	59.8	50.0	50.0	65.6	66.5
New Orleans, La	54.2	57.8	57.3	55.7	62.8	61.6	68.8	70.0	75.4	74.8	80.6	82.3	82.4	82.8	82.2	83.0	79.2	79.1	71.0	75.4	61.6	65.4	55.6	56.0	69.3	70.3
Shreveport, La	47.0	50.7	50.9	49.2	58.3	56.8	65.8	68.0	73.6	73.6	80.7	84.2	83.2	86.0	82.0	86.6	76.9	77.0	66.6	73.4	56.0	60.1	49.1	50.0	65.8	68.0
Amarillo, Tex	35.3	41.0	38.1	42.4	46.9	49.1	55.8	60.8	64.1	68.9	72.8	79.6	76.8	84.1	75.7	81.4	69.3	70.1	57.7	66.0	45.5	51.2	37.0	42.0	56.3	61.4
Brownsville, Tex	59.8	64.0	62.6	63.7	68.2	64.0	73.7	74.5	78.6	78.0	82.4	82.4	83.6	82.3	83.9	83.6	80.6	80.7	74.9	77.6	67.2	71.8	61.2	64.2	73.1	73.9
El Paso, Tex	45.0	45.4	49.0	53.8	55.8	58.0	63.4	68.0	71.5	76.8	79.6	83.1	81.1	84.8	79.2	83.8	73.9	77.8	63.5	69.4	52.7	55.4	44.9	48.5	63.3	67.1
Fort Worth, Tex	45.4	48.9	48.3	49.2	57.7	54.8	65.0	67.2	72.3	74.4	79.9	86.0	83.6	88.2	83.0	88.3	76.9	76.8	66.7	73.2	55.5	60.2	47.5	49.7	65.2	68.1
Galveston, Tex	53.8	57.6	56.3	56.2	62.4	60.6	68.7	69.5	74.8	75.4	80.7	83.0	83.4	82.3	83.0	83.2	80.1	79.8	72.7	76.5	63.3	67.7	56.4	57.4	69.6	70.8
San Antonio, Tex	52.3	55.2	55.4	55.4	62.8	61.0	69.1	70.8	75.1	76.7	81.0	85.2	83.8	84.8	83.5	84.6	79.0	80.2	70.5	76.4	60.3	65.6	53.7	56.0	68.9	71.0
Oklahoma City, Okla	36.4	40.8	39.6	42.4	50.0	48.8	59.8	61.9	67.7	70.9	76.0	83.2	80.6	88.3	79.7	86.2	72.8	70.2	61.5	67.0	48.8	53.4	39.3	40.6	59.4	62.8
Little Rock, Ark	41.4	44.8	44.9	41.6	53.0	49.7	62.1	62.4	70.3	71.3	77.4	81.2	80.9	85.0	79.8	84.6	74.1	72.1	63.6	68.2	52.1	54.4	44.2	42.2	62.0	63.1
Havre, Mont	12.9	27.7	13.6	30.6	27.1	32.6	43.7	49.6	53.4	62.5	62.0	62.3	68.3	71.6	65.4	67.8	56.4	51.4	44.5	49.2	31.2	38.0	20.4	23.1	41.6	47.2
Miles City, Mont	14.5	27.6	16.8	31.8	28.6	34.8	44.7	50.0	56.7	66.9	66.0	68.3	72.9	78.2	71.5	72.3	61.2	54.7	46.5	52.6	30.9	40.2	21.0	22.5	44.3	60.0
Kalispell, Mont	20.4	33.4	23.3	32.8	32.9	39.8	43.6	51.4	51.4	57.2	57.7	59.2	64.1	67.0	62.8	66.0	53.5	51.2	43.5	46.2	32.4	39.0	24.9	27.6	42.5	47.6
Cheyenne, Wyo	25.5	34.0	27.3	31.6	33.1	37.8	40.9	44.5	50.3	59.2	60.4	63.6	66.7	72.7	65.6	67.8	57.0	53.4	44.8	51.6	34.8	39.3	28.5	31.0	44.6	48.9
Sheridan, Wyo	18.8	31.4	22.0	31.4	31.3	35.9	43.4	47.5	52.0	61.4	61.0	64.2	67.8	73.0	66.2	67.8	56.2	51.8	44.4	50.6	32.4	39.5	22.5	28.7	43.2	48.6
Pueblo, Colo	29.9	39.2	32.9	38.0	41.6	45.4	50.1	53.8	59.2	67.0	69.0	73.4	74.2	80.0	72.7	77.3	64.6	64.0	52.0	59.2	39.4	45.2	31.5	35.2	51.4	56.5
Grand Junction, Colo	24.0	34.6	32.9	42.7	43.6	50.2	52.4	59.0	61.1	68.9	71.4	72.0	77.7	82.6	75.4	78.3	66.2	65.9	52.8	57.9	39.3	43.2	27.5	33.2	52.0	57.4
Santa Fe, N. Mex	28.8	32.6	33.1	39.6	39.7	44.4	46.7	51.1	55.7	61.0	64.8	66.8	69.0	71.8	67.4	70.2	60.9	60.4	50.4	54.3	38.9	39.8	30.7	32.5	48.8	52.0

Roswell, N. Mex	39.2	41.1	42.5	46.6	51.3	51.7	60.6	62.4	69.4	71.4	76.3	79.7	78.9	82.6	76.6	80.4	70.3	71.8	59.5	65.9	48.1	52.2	41.2	43.6	59.5	62.4
Phoenix, Ariz	51.2	54.5	55.1	60.8	60.7	70.0	67.0	74.8	75.0	83.2	84.5	83.8	89.8	94.0	88.5	90.0	82.7	84.8	70.6	75.5	59.7	61.4	52.0	56.0	69.7	74.1
Modena, Utah	26.7	32.2	31.0	38.2	38.2	46.8	46.0	52.2	53.5	60.6	63.3	61.9	70.6	73.6	69.2	72.1	60.0	61.2	48.0	51.9	36.4	41.0	28.1	31.0	47.6	51.9
Salt Lake City, Utah	29.2	35.0	33.8	43.0	41.7	50.6	49.6	58.0	57.4	68.2	67.4	68.4	75.7	79.7	74.5	77.8	64.4	63.6	52.5	56.2	41.1	44.2	31.9	33.2	51.6	56.5
Winnemucca, Nev	28.6	36.5	33.5	40.2	40.0	48.6	46.7	54.2	53.9	61.7	62.8	62.4	70.6	73.8	69.3	73.4	59.2	59.8	48.3	51.8	38.4	42.4	30.0	33.0	48.4	53.2
Boise, Idaho	29.8	39.8	34.8	44.2	42.7	50.6	50.4	57.6	57.1	65.4	65.3	65.6	72.9	76.1	71.8	74.9	61.9	61.4	51.1	54.4	41.0	46.6	32.1	32.9	50.9	55.8
Seattle, Wash	39.5	45.6	41.1	48.7	44.9	52.0	49.4	56.4	54.5	58.8	59.0	62.2	63.1	63.9	63.1	66.2	58.1	59.5	51.4	55.2	45.6	50.0	41.7	44.0	51.0	55.2
Walla Walla, Wash	32.7	43.7	37.1	43.6	46.1	53.4	53.1	60.4	59.6	64.6	66.5	68.6	74.0	75.2	72.7	75.8	63.8	64.0	53.5	56.4	42.8	48.9	35.5	39.3	53.1	57.8
Portland, Oreg	39.4	46.9	42.1	49.4	46.9	55.2	51.8	59.8	56.9	61.4	62.4	64.0	66.7	67.0	66.7	69.5	61.7	62.8	54.2	57.4	46.8	50.3	41.2	44.1	53.1	57.3
Roseburg, Oreg	41.2	47.2	43.4	49.7	47.1	56.5	51.0	58.7	56.0	61.6	62.5	63.6	67.4	67.5	68.0	70.0	62.9	63.4	53.9	58.5	45.9	51.4	41.8	44.6	53.4	57.7
Eureka, Calif	46.9	50.8	47.2	52.0	48.3	54.2	49.9	53.6	52.0	56.8	54.3	55.6	55.5	57.3	56.0	57.0	55.9	54.7	53.6	55.2	51.1	54.0	48.2	49.2	51.6	54.2
Fresno, Calif	46.2	46.0	51.1	54.4	55.0	63.8	60.2	67.6	67.1	71.3	75.8	73.2	82.1	81.8	80.7	81.0	73.4	76.6	64.0	66.0	54.2	55.5	46.2	47.5	63.0	65.4
Los Angeles, Calif	54.6	60.4	55.5	59.5	57.5	65.5	59.4	64.6	62.2	67.5	66.4	65.2	70.2	72.3	71.1	71.1	69.0	72.7	65.3	67.5	60.9	62.8	56.6	60.8	62.4	65.8
Sacramento, Calif	45.8	47.8	50.1	53.1	54.3	61.5	58.1	64.4	63.3	68.2	69.4	71.4	73.2	75.2	72.9	75.4	69.3	72.5	62.9	64.6	53.6	55.2	46.2	47.8	59.9	63.1
San Diego, Calif	54.3	56.1	55.1	58.3	56.7	61.8	58.5	62.3	60.8	64.7	63.9	64.0	67.2	69.0	68.7	69.0	67.1	69.7	63.7	64.9	59.7	61.2	56.0	59.1	61.0	63.3
San Francisco, Calif	49.9	51.8	52.2	55.6	54.2	60.6	55.0	59.0	56.8	60.6	58.5	61.0	58.5	60.0	59.1	60.9	60.9	63.6	60.5	61.8	56.3	58.5	51.3	52.9	56.1	58.9

[1] Normals are based on records of 30 or more years of observation. Normal and 1934 means based on mean of the daily temperature extremes.

Weather Bureau.

TABLE 496.—*Precipitation: Normal* [1] *and 1934, by months, at selected points in the United States*

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934	Normal	1934
	In.	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*
Greenville, Maine	2.86	2.89	2.75	2.85	3.06	1.92	3.05	5.61	3.45	1.74	3.85	6.45	4.62	3.96	3.56	2.08	3.35	4.25	3.60	1.95	3.38	2.42	3.14	3.46	41.17	39.58
Burlington, Vt.	1.76	3.04	1.57	1.22	2.04	1.55	2.15	2.13	2.85	1.02	3.38	3.81	3.50	2.40	3.37	1.31	3.48	4.05	2.97	1.65	2.66	2.47	1.88	2.68	31.61	27.33
Boston, Mass.	3.61	2.67	3.37	4.45	3.57	4.04	3.34	3.21	3.18	1.56	2.89	3.11	3.49	1.25	3.62	1.83	3.14	5.67	3.15	2.94	3.33	1.78	3.45	1.64	40.14	34.18
Buffalo, N. Y.	3.30	1.64	2.95	1.80	2.57	2.32	2.56	1.96	3.10	.54	2.82	1.86	3.03	1.07	3.08	1.18	2.92	3.57	3.29	1.51	3.02	2.55	3.36	2.89	36.00	22.89
Canton, N. Y.	2.50	2.36	2.27	1.39	2.50	3.28	2.18	3.19	3.00	.77	3.29	3.01	3.50	2.54	3.65	.95	3.35	3.11	3.03	3.11	3.16	3.29	2.69	2.00	35.12	29.00
Trenton, N. J.	3.31	3.37	3.27	2.21	3.40	2.92	2.94	2.73	3.08	4.79	3.09	3.41	3.94	2.90	4.75	2.59	3.40	10.49	2.78	2.15	2.73	1.97	3.35	2.37	40.04	41.90
Pittsburgh, Pa.	3.05	2.02	2.62	.85	3.03	2.15	2.92	2.41	3.21	.66	3.81	4.45	4.05	3.25	3.23	7.47	2.58	3.78	2.52	.67	2.29	2.63	2.86	1.33	36.17	31.67
Scranton, Pa.	3.03	1.58	3.04	1.31	3.20	2.78	2.77	2.27	3.27	3.32	3.67	2.45	4.03	6.74	3.69	2.75	3.17	4.40	3.03	1.06	2.77	3.09	3.02	2.32	38.69	34.07
Cincinnati, Ohio	3.48	1.61	2.99	.96	3.89	2.83	3.12	1.16	3.70	.98	3.66	3.83	3.31	2.44	3.41	1.72	2.65	3.58	2.51	.35	2.85	1.72	2.98	1.58	38.55	22.76
Cleveland, Ohio	2.51	1.58	2.51	1.02	2.71	2.43	2.44	2.43	3.12	.58	3.12	2.26	3.45	2.70	2.77	2.46	3.33	2.12	2.78	.99	2.64	1.40	2.44	1.84	33.82	21.81
Evansville, Ind.	3.74	1.09	3.24	1.14	4.19	2.95	3.90	1.99	3.86	2.12	4.04	6.72	3.42	1.85	3.36	3.66	3.31	8.14	2.82	.85	3.74	2.11	3.54	2.64	43.16	35.26
Indianapolis, Ind.	2.95	1.25	2.73	.86	3.93	3.32	3.62	2.23	3.89	.60	3.62	2.98	3.34	2.50	3.31	2.49	3.40	4.54	2.78	.19	3.35	2.14	2.98	1.87	39.90	24.97
Fort Wayne, Ind.	2.33	1.52	2.35	.66	3.22	2.75	3.07	2.37	3.85	1.20	3.57	2.67	3.60	2.18	3.11	3.75	3.06	3.56	2.60	.82	2.88	3.36	2.58	1.40	36.22	26.24
Chicago, Ill.	1.90	.84	2.14	.52	2.58	1.21	2.78	1.32	3.54	.67	3.30	2.24	3.33	.42	3.21	3.41	3.14	4.03	2.53	2.32	2.37	3.87	2.04	1.93	32.86	22.78
Peoria, Ill.	1.78	1.05	2.01	.77	2.73	1.76	3.38	1.13	4.06	.47	3.77	2.82	3.58	5.44	3.12	2.30	4.03	6.57	2.29	1.97	2.37	4.81	1.77	1.34	34.89	30.43
Cairo, Ill.	3.76	1.28	3.13	2.01	3.75	3.86	3.72	1.69	3.71	1.59	3.83	.92	3.07	3.41	3.02	2.70	2.89	6.02	2.76	2.68	3.68	8.45	3.40	3.30	40.72	37.91
Grand Rapids, Mich.	2.35	1.40	2.24	.56	2.48	1.63	2.77	1.75	3.44	1.96	3.48	3.04	2.92	.40	2.61	1.62	3.53	5.76	2.81	2.27	2.77	3.40	2.57	1.51	33.97	25.30
Alpena, Mich.	1.89	1.00	1.71	.78	1.99	2.22	2.24	2.10	3.05	1.75	3.30	3.03	2.76	3.22	2.86	1.38	2.98	4.12	2.71	1.57	2.60	2.57	2.08	1.48	30.17	25.22
Marquette, Mich.	2.33	3.00	1.90	1.02	2.26	2.30	2.43	2.92	2.96	.60	3.22	2.16	3.12	2.01	2.67	1.83	3.25	6.59	2.76	.93	2.91	5.76	2.66	2.30	32.47	31.42
Madison, Wis.	1.38	.70	1.50	.19	2.07	1.65	2.77	1.08	3.85	.82	3.76	2.77	3.88	3.42	3.21	2.21	3.72	4.25	2.43	2.27	1.78	7.86	1.63	.97	31.98	28.19
Green Bay, Wis.	1.54	.92	1.56	.44	2.04	2.37	2.65	1.91	3.52	2.01	3.70	4.47	3.46	2.34	3.18	3.85	3.52	1.91	2.54	1.60	2.16	6.19	1.71	.98	31.58	28.99
Duluth, Minn.	.97	1.03	1.05	.44	1.54	.96	2.06	1.36	3.25	1.10	3.91	3.26	3.76	1.53	3.18	2.19	3.31	3.10	2.31	4.17	1.45	1.90	1.15	1.94	27.94	22.98
Minneapolis, Minn.	.86	.68	.95	.17	1.42	.68	2.23	1.57	3.67	.21	4.22	2.30	3.73	1.40	3.12	1.61	3.13	4.86	2.08	5.64	1.27	2.33	.98	1.23	27.66	22.73
Des Moines, Iowa	1.07	1.22	1.12	.72	1.78	1.00	2.91	.98	4.56	1.06	4.76	3.18	3.50	2.52	3.52	1.39	3.67	6.20	2.50	1.67	1.43	4.08	1.22	.30	32.04	24.32
Dubuque, Iowa	1.30	.90	1.38	.86	2.03	1.72	2.85	1.03	4.22	.76	4.31	3.10	3.94	5.48	3.24	3.29	4.01	6.54	2.48	1.20	1.70	8.63	1.44	.99	32.90	34.50
St. Louis, Mo.	2.34	1.72	2.56	1.26	3.38	2.96	3.81	2.40	4.34	.54	3.82	3.25	2.98	1.22	2.99	3.14	3.46	5.86	2.72	2.23	2.83	2.66	2.21	1.95	37.44	29.19
St. Joseph, Mo.	1.05	.40	1.38	.88	2.04	.43	3.02	3.36	4.24	2.34	4.94	3.96	3.68	1.05	3.50	5.84	3.87	7.05	2.69	1.66	1.63	5.22	.97	.27	33.01	32.46
Springfield, Mo.	2.34	1.42	2.35	1.38	3.39	2.76	3.86	3.77	5.19	2.07	4.68	2.65	4.21	.89	4.09	2.60	3.52	6.50	3.05	1.30	2.79	5.70	2.31	1.54	41.78	32.58
Bismarck, N. Dak.	.45	.08	.44	.03	.89	.62	1.52	.32	2.32	.09	3.35	3.39	2.24	.98	1.82	.50	1.23	.54	.94	.86	.57	.20	.57	.13	16.34	7.74
Devils Lake, N. Dak.	.47	.55	.50	.10	.73	.43	1.52	.58	2.03	.68	3.56	3.59	2.57	1.58	2.48	1.00	1.63	.73	1.25	1.89	.72	.25	.54	.40	18.05	11.78
Pierre, S. Dak.	.46	.01	.46	.18	.86	.96	1.81	.80	2.49	.38	2.96	1.80	2.68	.81	2.09	.62	1.10	1.86	.82	1.23	.47	.20	.50	.41	16.70	9.26
North Platte, Nebr.	.39	.05	.53	.52	.86	.36	2.06	.62	2.78	.65	3.22	2.98	2.74	.79	2.39	3.20	1.35	3.50	1.07	.30	.47	.17	.53	.42	18.39	13.56
Omaha, Nebr.	.70	.53	.89	.87	1.37	.77	2.51	.28	3.77	.60	4.56	2.97	3.54	.52	3.05	1.11	3.21	2.32	2.17	1.92	1.07	2.68	.93	.33	27.77	14.90
Concordia, Kans.	.61	.43	.88	1.22	1.23	.29	2.36	.71	4.18	2.55	4.41	3.34	3.78	.95	2.91	.71	2.60	1.82	1.97	.75	.99	2.29	.63	.22	26.55	15.23
Dodge City, Kans.	.41	.29	.77	1.60	.89	.52	1.94	.42	2.89	1.00	3.30	2.34	3.14	.43	2.67	.24	1.90	2.05	1.30	1.50	.73	.98	.57	.13	20.51	11.50
Iola, Kans.	1.32	.98	1.67	1.09	2.62	1.52	3.49	2.10	4.70	5.74	5.47	5.11	3.75	1.81	3.49	.82	4.93	7.62	2.99	1.92	1.83	5.03	1.39	.85	37.65	34.59
Washington, D. C.	3.55	1.97	3.27	3.22	3.75	4.18	3.27	2.27	3.70	3.85	4.13	2.37	4.71	2.88	4.01	5.21	3.24	17.45	2.84	.75	2.37	3.58	3.32	2.91	42.16	51.14
Lynchburg, Va.	3.43	1.92	3.15	3.48	3.54	5.75	2.95	3.52	3.63	4.09	3.79	4.21	4.21	3.04	3.78	4.69	3.31	7.37	3.15	1.69	2.33	6.11	3.26	2.99	40.53	48.86
Norfolk, Va.	3.10	1.88	3.22	5.68	3.77	6.31	3.23	2.04	3.81	6.96	4.22	1.68	5.75	8.19	5.22	4.37	3.23	6.80	3.04	.20	2.16	2.35	3.34	1.83	44.09	48.29
Parkersburg, W. Va.	3.58	1.91	3.13	1.25	3.49	3.19	3.19	1.24	3.38	2.09	4.00	3.72	4.29	2.93	3.51	4.69	2.76	3.29	2.48	.49	2.57	2.16	3.03	1.72	39.41	28.68
Lexington, Ky.	4.18	1.92	3.62	1.68	4.32	3.86	3.50	2.10	3.81	1.52	4.05	4.52	3.65	7.84	3.45	3.72	3.07	4.81	2.59	1.54	3.34	2.22	3.77	2.52	43.35	38.25
Charlotte, N. C.	4.00	1.18	4.13	3.23	4.17	2.67	3.31	3.21	3.63	3.22	4.22	7.36	5.10	3.07	5.07	4.23	2.99	4.89	2.95	4.07	2.57	3.08	3.86	3.29	46.05	43.50
Wilmington, N. C.	3.29	1.15	3.26	3.51	3.17	4.46	2.66	1.16	3.44	5.58	5.10	3.42	7.13	3.09	6.36	5.28	4.51	7.06	3.27	.77	1.96	7.70	2.78	3.00	46.93	46.18

Charleston, S. C	3.02	1.80	2.98	3.07	3.02	1.18	2.53	1.72	3.00	5.41	4.59	1.68	6.89	2.35	6.53	7.05	4.53	4.04	3.27	5.73	2.14	2.64	2.72	2.16	45.22	33.83
Greenville, S. C	4.87	2.66	5.18	4.34	5.15	6.00	3.72	4.27	4.03	4.51	4.55	5.07	5.36	2.92	5.50	5.00	3.68	1.72	3.12	3.22	3.18	2.96	4.84	3.41	53.18	46.08
Atlanta, Ga	4.95	2.72	4.79	4.65	5.30	4.07	3.61	3.08	3.47	3.26	3.74	4.19	4.65	5.49	4.45	3.32	2.99	4.68	2.59	5.34	3.03	1.66	4.70	2.42	48.27	44.88
Thomasville, Ga	4.10	1.39	4.46	3.12	4.09	3.85	3.34	1.78	3.63	8.17	5.45	5.29	6.70	7.70	5.75	3.32	4.88	1.61	2.96	.75	2.68	1.67	4.31	1.61	52.35	40.26
Jacksonville, Fla	2.80	1.08	2.97	3.48	2.91	2.18	2.38	2.92	4.02	6.33	5.33	13.23	6.71	5.07	5.81	5.98	7.35	1.99	4.46	5.24	1.98	.31	3.02	.70	49.74	48.51
Miami, Fla	2.52	2.94	1.83	5.20	2.17	1.28	3.09	6.27	6.22	16.10	6.86	9.56	5.42	8.18	6.17	3.20	8.34	9.69	8.44	3.14	2.91	2.26	1.69	.97	55.66	68.79
Memphis, Tenn	4.81	2.62	4.36	1.37	5.26	6.38	4.78	1.27	4.19	2.54	3.55	2.96	3.18	.73	3.36	2.19	2.80	3.22	2.68	1.11	4.24	13.21	4.51	5.37	47.72	42.97
Nashville, Tenn	4.76	2.99	4.13	2.61	5.11	7.99	4.13	2.24	3.87	1.61	4.00	5.79	3.88	3.85	3.71	1.87	3.42	4.52	2.49	2.02	3.50	1.45	4.20	2.57	47.20	39.51
Birmingham, Ala	5.52	3.98	5.06	4.95	5.70	8.19	4.81	2.83	3.95	2.26	4.46	7.60	5.17	5.75	4.26	9.26	3.38	1.53	2.42	10.95	3.31	3.14	5.14	3.52	53.18	63.95
Mobile, Ala	4.85	4.31	5.33	4.90	5.98	5.93	4.63	6.43	4.32	5.63	5.43	4.14	6.89	6.06	6.92	7.59	5.00	.95	3.60	7.39	3.64	5.31	5.02	2.93	61.61	61.57
Meridian, Miss	5.32	3.16	5.45	5.66	5.23	5.72	4.78	1.96	4.32	3.79	4.55	4.52	4.89	11.57	4.54	3.89	2.96	3.63	2.39	4.21	3.32	6.44	5.23	5.04	52.98	59.59
Vicksburg, Miss	5.37	5.54	4.82	5.38	5.57	5.71	5.19	1.45	4.32	3.47	3.99	8.45	4.53	3.91	3.46	4.35	2.87	3.64	2.77	2.44	3.71	7.42	5.33	6.01	51.93	57.77
New Orleans, La	4.34	6.00	4.25	3.33	4.72	5.93	5.24	4.55	4.60	10.39	5.88	5.24	6.37	7.72	5.80	11.46	5.03	1.16	3.30	2.53	3.14	5.75	4.79	1.96	57.46	66.02
Shreveport, La	3.93	5.91	3.29	2.75	4.11	9.30	4.63	4.13	4.22	4.46	3.50	.95	3.56	.41	2.70	.73	2.80	1.51	2.69	T	3.65	9.12	4.29	4.06	43.37	43.33
Amarillo, Tex	.51	.09	.71	.09	.71	2.83	1.83	.77	2.79	3.21	2.84	1.94	2.84	.19	3.08	1.51	2.30	.96	1.66	.21	.92	1.13	.80	.40	20.99	13.33
Brownsville, Tex	1.50	2.37	1.21	.82	1.26	2.31	1.43	2.35	2.27	1.50	2.87	.27	1.96	3.64	2.55	.98	5.52	7.49	3.29	.35	1.98	.66	1.56	1.18	27.40	23.92
El Paso, Tex	.46	.01	.41	.12	.36	.24	.26	.05	.33	.37	.58	.01	1.99	.19	1.70	.60	1.25	.17	.80	.44	.50	.21	.52	.32	9.16	2.73
Fort Worth, Tex	2.05	1.86	1.76	1.67	2.32	4.26	4.02	2.39	4.65	.82	3.35	T	2.61	.08	2.62	.13	2.49	4.90	2.81	.12	2.58	2.30	1.87	.56	33.13	19.09
Galveston, Tex	3.41	8.42	2.83	2.95	2.68	7.29	3.06	5.67	3.42	.62	4.37	.01	3.71	4.55	4.28	9.35	5.57	3.04	4.36	1.56	3.33	6.01	3.75	3.42	44.77	52.89
San Antonio, Tex	1.46	4.88	1.65	.43	1.84	2.05	3.19	4.56	3.20	1.65	2.46	.18	2.17	3.83	2.42	.88	3.05	1.95	2.23	.19	1.90	2.88	1.61	4.17	27.18	27.65
Oklahoma City, Okla	1.19	2.06	1.11	1.15	1.98	.95	3.29	1.46	4.88	3.61	3.67	1.98	2.86	.13	2.89	7.44	3.05	6.45	2.86	2.03	1.87	3.23	1.50	.62	31.15	31.11
Little Rock, Ark	4.73	2.63	3.54	1.40	4.62	6.84	5.19	5.81	4.78	2.74	3.76	3.17	3.50	2.28	3.75	2.15	3.17	4.00	2.71	.52	4.19	4.93	4.14	5.90	48.38	42.37
Havre, Mont	.73	.22	.50	.07	.51	1.05	.99	.83	2.04	.58	2.86	3.12	1.87	.21	1.22	.98	1.29	1.74	.67	.67	.61	.13	.61	.66	13.90	10.26
Miles City, Mont	.66	.12	.49	.05	.86	1.05	1.12	.40	2.24	.34	2.66	.66	1.54	.67	1.08	.42	1.04	1.04	.90	.03	.57	.38	.63	.35	13.79	5.51
Kalispell, Mont	1.57	.88	1.11	.06	.95	2.72	.80	.68	1.46	1.22	2.06	2.96	1.10	.27	.87	.07	1.24	.71	1.06	2.26	1.35	.97	1.45	.94	15.02	13.74
Cheyenne, Wyo	.42	.29	.64	1.32	1.02	.86	1.99	1.54	2.43	1.66	1.61	.87	2.10	2.52	1.55	1.41	1.20	.72	.96	T	.52	.10	.55	.15	14.99	11.44
Sheridan, Wyo	.85	.32	.70	.49	1.16	1.61	1.92	2.39	2.65	.53	2.04	1.38	1.22	.40	.91	.12	1.27	1.90	1.07	1.49	.63	.25	.64	.68	15.06	11.56
Pueblo, Colo	.31	T	.47	1.23	.59	.38	1.31	.60	1.60	.47	1.36	.14	1.94	1.85	1.82	.40	.75	.34	.66	.01	.36	.23	.50	.13	11.67	5.38
Grand Junction, Colo	.60	.41	.58	1.36	.76	.09	.83	.55	.81	1.48	.40	.09	.61	.30	1.17	1.45	.92	.72	.95	.03	.57	1.04	.63	.58	8.83	8.10
Santa Fe, N. Mex	.67	.63	.75	.79	.80	T	1.06	.46	1.26	2.67	1.08	.54	2.38	1.98	2.28	2.35	1.45	1.34	1.18	.23	.68	1.47	.74	.80	14.27	13.26
Roswell, N. Mex	.53	.04	.57	.04	.74	1.12	.89	.14	1.09	.89	1.67	.80	2.26	.13	2.15	1.48	2.11	T	1.42	.47	.85	1.80	.66	.05	14.94	6.96
Phoenix, Ariz	.80	.40	.77	.99	.68	.10	.40	.07	.12	.10	.07	.03	1.07	.11	.95	1.07	.75	.66	.47	.00	.70	.63	1.00	1.71	7.78	5.87
Modena, Utah	.85	.23	.95	.34	1.03	.06	.89	.51	.79	.28	.32	.40	1.08	.54	1.29	1.81	.78	.72	.74	.55	.59	.28	.83	1.08	10.14	6.80
Salt Lake City, Utah	1.31	1.47	1.51	2.24	1.98	.96	2.05	.46	1.92	.01	.80	.82	.51	.68	.85	1.01	.98	.40	1.44	1.48	1.35	2.89	1.43	1.87	16.13	14.29
Winnemucca, Nev	1.03	.64	.91	2.11	.96	.66	.84	.95	.88	.23	.72	.99	.21	.02	.20	.01	.41	.25	.62	.87	.68	1.28	1.08	1.06	8.54	9.07
Boise, Idaho	1.73	1.29	1.44	1.59	1.35	.88	1.18	.46	1.43	.10	.92	1.22	.24	.41	.19	.10	.53	.04	1.24	1.07	1.28	1.97	1.57	1.49	13.10	10.62
Seattle, Wash	4.94	6.31	3.89	1.29	3.05	2.65	2.38	1.37	1.87	2.48	1.33	.23	.63	.83	.70	.18	1.77	2.22	2.84	3.62	5.03	6.67	5.60	5.46	34.03	33.31
Walla Walla, Wash	1.96	1.21	1.76	.53	1.61	2.29	1.51	.44	1.61	.41	1.12	1.08	.39	.06	.49	.35	.95	.60	1.53	1.57	2.02	2.38	2.06	1.57	17.01	12.49
Portland, Oreg	6.60	6.02	5.36	1.40	3.91	5.18	2.87	2.46	2.19	1.60	1.52	.96	.61	.11	.64	.33	1.98	1.32	3.12	5.30	6.10	10.47	6.72	10.83	41.62	45.98
Roseburg, Oreg	5.31	4.42	4.49	1.20	3.28	1.65	2.27	2.00	1.93	1.21	1.09	1.43	.32	.06	.34	.09	1.27	.57	2.61	4.04	4.66	7.47	5.34	5.39	32.91	29.53
Eureka, Calif	7.11	3.83	6.48	2.31	5.23	3.61	3.33	1.68	1.80	1.23	.72	.29	.11	T	.18	.01	1.01	.47	2.33	3.98	5.18	8.63	6.28	5.28	39.76	31.32
Fresno, Calif	1.73	.43	1.43	1.80	1.58	T	.95	T	.44	.03	.08	.05	.01	.00	.01	.00	.21	.01	.57	1.74	.93	2.22	1.45	1.89	9.39	8.17
Los Angeles, Calif	3.10	3.22	3.07	2.04	2.78	.01	1.04	T	.45	.00	.08	.41	.01	T	.02	.01	.17	.13	.68	2.31	1.20	2.79	2.63	3.75	15.23	14.67
Sacramento, Calif	3.72	1.33	3.02	2.97	2.57	.13	1.51	.16	.77	.26	.15	.30	.00	.00	.00	T	.38	.01	.92	.45	1.88	2.61	3.03	2.50	17.95	10.72
San Diego, Calif	2.06	.30	2.03	1.88	1.72	.24	.77	.01	.35	.02	.05	.47	.03	T	.04	.02	.08	.18	.54	.42	.76	1.95	1.87	3.38	10.30	8.87
San Francisco, Calif	4.54	1.03	3.85	4.68	3.14	.07	1.61	.51	.80	.12	.18	.68	.02	.01	.01	T	.45	.13	1.12	.88	2.35	3.76	3.95	4.06	22.02	15.93

[1] Normals are based on records of 20 or more years of observations.
T=Trace, indicates an amount too small to measure.

Weather Bureau.

TABLE 497.—*Frost: Dates of killing frosts, with length of growing season*

Station	Date of last killing frost in spring, 1934	Date of first killing frost in fall, 1934	Averages and extremes of killing frost for 30 to 51 years				Length of growing season between average dates of killing frosts
			Spring frosts		Fall frosts		
			Latest date	Average date	Earliest date	Average date of first	
							Days
Greenville, Maine	June 8 [1]	Oct. 1 [1]	June 23	May 30	Aug. 26	Sept. 14	107
Portland, Maine	Apr. 29	Oct. 5	June 20	Apr. 19	Sept. 11	Oct. 17	181
Concord, N. H	do	Oct. 10	June 5	May 7	Sept. 6	Oct. 3	149
Northfield, Vt	June 8 [1]	Oct. 2	June 29	May 22	Aug. 26	Sept. 18	119
Boston, Mass	Apr. 5 [1]	Oct. 13	May 16	Apr. 14	Sept. 26	Oct. 26	195
Hartford, Conn	Apr. 29	Nov. 2 [1]	May 12	Apr. 20	Sept. 11	Oct. 14	177
Albany, N. Y	Apr. 29 [1]	Oct. 14	May 30	Apr. 24	Sept. 15	Oct. 15	174
Buffalo, N. Y	Apr. 28	Oct. 20	May 23	Apr. 28	Oct. 2	Oct. 22	177
Canton, N. Y	May 8	Oct. 1	June 2	May 4	Sept. 11	Sept. 30	149
Setauket, N. Y	Apr. 5 [1]	Nov. 3 [1]	May 17	Apr. 16	Oct. 21	Nov. 10	208
Syracuse, N. Y	Apr. 29 [1]	Oct. 13 [1]	May 5	Apr. 23	Sept. 21	Oct. 22	182
Atlantic City, N. J	Mar. 30 [1]	Nov. 3	Apr. 30	Apr. 10	Oct. 1	Nov. 5	209
Trenton, N. J	Apr. 5	do	May 12	Apr. 16	Oct. 11	Oct. 24	191
Erie, Pa	Apr. 28 [1]	Oct. 14	May 17	Apr. 20	Oct. 9	Nov. 1	195
Harrisburg, Pa	Apr. 28	do	May 12	Apr. 9	Oct. 3	Oct. 28	202
Pittsburgh, Pa	Apr. 27	Oct. 13	May 29	Apr. 23	Sept. 19	Oct. 21	181
Scranton, Pa	Apr. 29	do	May 12	Apr. 21	Sept. 14	Oct. 14	176
Cincinnati, Ohio	Apr. 28	Nov. 2	Apr. 28	Apr. 8	Sept. 30	Oct. 23	198
Cleveland, Ohio	do	do	May 21	Apr. 16	Oct. 2	Nov. 3	201
Columbus, Ohio	do	Oct. 14	May 17	Apr. 18	Sept. 21	Oct. 19	184
Dayton, Ohio	do	do	May 25	Apr. 19	Sept. 30	Oct. 20	184
Toledo, Ohio	do	do	May 29	Apr. 22	Sept. 9	Oct. 18	179
Evansville, Ind	Mar. 28 [1]	Nov. 12	Apr. 26	Apr. 5	Oct. 9	Oct. 29	207
Fort Wayne, Ind	Apr. 25	Oct. 30	May 28	Apr. 25	Sept. 14	Oct. 13	171
Indianapolis, Ind	Apr. 13 [1]	Oct. 28	May 25	Apr. 16	Sept. 21	Oct. 20	187
Cairo, Ill	Mar. 28	Nov. 12	Apr. 30	Mar. 31	Sept. 30	Oct. 29	212
Chicago, Ill	Apr. 13 [1]	Oct. 28	May 25	Apr. 16	Sept. 20	Oct. 19	186
Peoria, Ill	Apr. 25	do	May 11	Apr. 15	Sept. 26	do	187
Springfield, Ill	do	do	May 25	do	Sept. 25	do	187
Alpena, Mich	May 12	Oct. 10	June 9	May 13	Sept. 6	Oct. 1	141
Detroit, Mich	do	Oct. 13	May 31	Apr. 28	Sept. 21	Oct. 15	170
Grand Haven, Mich	May 12 [1]	Oct. 19 [1]	May 28	Apr. 30	Sept. 23	Oct. 18	171
Grand Rapids, Mich	May 12	Oct. 19	May 30	May 1	do	do	170
Ludington, Mich	May 25	do	June 17	May 2	Sept. 4	Oct. 21	172
Marquette, Mich	Apr. 28	do	June 6	May 13	Aug. 23	Oct. 9	149
Green Bay, Wis	May 12	Oct. 28	May 30	May 5	Sept. 16	do	157
La Crosse, Wis	Apr. 27 [1]	do	May 24	Apr. 29	Sept. 10	do	163
Madison, Wis	Apr. 27	do	May 25	Apr. 26	Sept. 16	Oct. 17	174
Milwaukee, Wis	Apr. 28	do	May 29	do	Sept. 25	Oct. 18	175
Duluth, Minn	May 15 [1]	Oct. 26	June 14	May 6	Sept. 10	Oct. 5	152
Minneapolis, Minn	Apr. 27	Oct. 28 [1]	May 20	Apr. 27	Sept. 13	Oct. 10	166
Moorhead, Minn	May 11	Sept. 21	June 8	May 12	Aug. 25	Sept. 24	135
Charles City, Iowa	Apr. 27	Oct. 28	May 21	Apr. 29	Sept. 12	Oct. 2	156
Des Moines, Iowa	Apr. 25	do	May 31	Apr. 21	Sept. 13	Oct. 9	171
Dubuque, Iowa	do	do	May 21	Apr. 20	Sept. 26	Oct. 16	179
Keokuk, Iowa	Apr. 21 [1]	do	May 4	Apr. 12	Sept. 18	Oct. 17	188
Columbia, Mo	Apr. 25	do	May 9	Apr. 13	do	Oct. 18	188
St. Joseph, Mo	Mar. 31 [1]	do	Apr. 28	Apr. 9	Sept. 26	Oct. 17	191
St. Louis, Mo	Mar. 28	Nov. 1	May 22	Apr. 3	Sept. 30	Oct. 29	209
Springfield, Mo	Mar. 31	Oct. 28	May 19	Apr. 12	do	Oct. 22	193
Bismarck, N. Dak	Apr. 27	Sept. 15	June 7	May 11	Aug. 23	Sept. 21	133
Devils Lake, N. Dak	May 13	do	do	May 16	Aug. 8	Sept. 24	131
Williston, N. Dak	do	do	June 16	do	Aug. 22	Sept. 20	127
Huron, S. Dak	Apr. 27 [1]	Sept. 21	June 21	May 9	Aug. 23	Sept. 25	139
Pierre, S. Dak	Apr. 24	Sept. 26 [1]	May 24	Apr. 30	Sept. 12	Oct. 7	160
Rapid City, S. Dak	do	Sept. 15	do	May 3	Sept. 13	Oct. 1	151
Yankton, S. Dak	Apr. 26 [1]	Sept. 26	May 27	May 1	Sept. 14	Oct. 6	158
North Platte, Nebr	Apr. 20	do	May 24	do	Sept. 10	Oct. 2	154
Omaha, Nebr	Apr. 25	Oct. 28	May 19	Apr. 14	Sept. 18	Oct. 15	184
Valentine, Nebr	Apr. 24	Sept. 25	June 21	May 6	Sept. 12	Oct. 2	149
Concordia, Kans	Mar. 31	Oct. 28	May 19	Apr. 17	Sept. 27	Oct. 16	182
Dodge City, Kans	Mar. 31 [1]	do	May 27	Apr. 16	Sept. 23	Oct. 21	188
Iola, Kans	do	do	May 4	Apr. 7	Sept. 26	Oct. 17	193
Wichita, Kans	Mar. 31	Nov. 11	May 15	Apr. 9	Sept. 23	Oct. 23	197
Washington, D. C	Mar. 29	Nov. 3	May 12	Apr. 8	Oct. 2	Oct. 20	195
Lynchburg, Va	Apr. 22	Oct. 14	May 7	Apr. 9	do	Oct. 27	201
Norfolk, Va	Mar. 24 [1]	Nov. 13 [1]	Apr. 26	Mar. 25	Oct. 11	Nov. 16	236
Richmond, Va	Mar. 30	Oct. 14	do	Mar. 31	Oct. 12	Nov. 2	216
Wytheville, Va	Apr. 28	do	May 27	Apr. 20	Sept. 19	Oct. 17	180
Elkins, W. Va	do	do	June 1	May 4	Sept. 20	Oct. 12	161
Parkersburg, W. Va	do	do	May 22	Apr. 17	Sept. 29	Oct. 18	184
Asheville, N. C	Apr. 14	Oct. 29	May 10	Apr. 11	Oct. 3	Oct. 22	194
Charlotte, N. C	Mar. 15	Nov. 13	Apr. 26	Mar. 25	Oct. 8	Nov. 5	225
Raleigh, N. C	Mar. 13	Oct. 29	do	Mar. 27	do	do	223
Wilmington, N. C	Mar. 21	do	May 1	Mar. 21	Oct. 16	Nov. 15	239

[1] Temperature 32° F. or below.

TABLE 497.—*Frost: Dates of killing frosts, with length of growing season*—Con.

Station	Date of last killing frost in spring, 1934	Date of first killing frost in fall, 1934	Averages and extremes of killing frost for 30 to 51 years				Length of growing season between average dates of killing frosts
			Spring frosts		Fall frosts		
			Latest date	Average date	Earliest date	Average date of first	
							Days
Charleston, S. C	Mar. 12 [1]	Nov. 13	Apr. 2	Feb. 28	Oct. 28	Dec. 1	276
Columbia, S. C	Mar. 15	Nov. 12	Apr. 17	Mar. 17	Oct. 30	Nov. 18	246
Greenville, S. C	Apr. 14	---do	Apr. 24	---do	Oct. 10	Nov. 13	241
Atlanta, Ga	Mar. 15	Oct. 29	Apr. 17	Mar. 29	Oct. 11	Nov. 8	224
Augusta, Ga	Mar. 13	Nov. 13	---do	Mar. 15	Oct. 21	Nov. 12	242
Macon, Ga	---do	---do	Apr. 18	Mar. 14	Oct. 11	Nov. 14	245
Savannah, Ga	Mar. 12	Nov. 16	Apr. 13	Feb. 26	Oct. 25	Nov. 23	270
Thomasville, Ga	Mar. 11	Nov. 13	Apr. 26	Mar. 8	---do	Nov. 20	257
Apalchicola, Fla	---do	Dec. 11 [1]	Mar. 23	Feb. 5	Nov. 13	Dec. 28	326
Avon Park, Fla	None	Dec. 9	Mar. 14	Jan. 12	Nov. 14	Dec. 26	348
Jacksonville, Fla	Mar. 11	Dec. 8	Apr. 10	Feb. 16	Nov. 12	Dec. 7	294
Miami, Fla	None	Dec. 12	Mar. 3	(2)	Nov. 21	(2)	(2)
Tampa, Fla	None	---do	Mar. 19	(2)	---do	(2)	(2)
Chattanooga, Tenn	Mar. 20	Nov. 12	May 14	Mar. 29	Sept. 30	Nov. 4	220
Knoxville, Tenn	---do	Oct. 29	Apr. 26	Apr. 2	Oct. 1	Oct. 29	210
Memphis, Tenn	Mar. 28	Nov. 12	Apr. 25	Mar. 21	Oct. 2	Nov. 4	228
Nashville, Tenn	Mar. 29	Oct. 29	Apr. 24	Mar. 31	Oct. 8	Oct. 28	211
Birmingham, Ala	Mar. 15	Nov. 12	Apr. 20	Mar. 17	Oct. 21	Nov. 10	238
Mobile, Ala	Mar. 11 [1]	Dec. 8	Apr. 6	Feb. 17	Oct. 31	Dec. 7	293
Montgomery, Ala	Mar. 15	Nov. 13	Apr. 5	Mar. 8	Oct. 21	Nov. 13	250
New Orleans, La	Feb. 27 [1]	Dec. 12	Mar. 27	Jan. 25	Nov. 11	Dec. 18	327
Shreveport, La	Mar. 19	Dec. 1	Apr. 9	Mar. 6	Oct. 20	Nov. 12	251
Abilene, Tex	Mar. 27	Nov. 30 [1]	Apr. 23	Mar. 23	Oct. 19	Nov. 9	231
Amarillo, Tex	Mar. 18	Nov. 22	May 23	Apr. 14	Oct. 16	Nov. 1	201
Brownsville, Tex	None	None	Mar. 14	Jan. 25	Nov. 15	Dec. 23	332
Corpus Christi, Tex	None	None	Mar. 19	Feb. 15	Nov. 29	Dec. 20	308
Del Rio, Tex	Jan. 9	Dec. 20	Mar. 27	Feb. 23	Oct. 27	Nov. 27	277
El Paso, Tex	Mar. 19	Nov. 22	Apr. 26	Mar. 19	Oct. 23	Nov. 16	242
Fort Worth, Tex	---do	Dec. 1	Apr. 9	Mar. 10	Oct. 22	---do	251
Galveston, Tex	None	None	Mar. 19	Jan. 19	Nov. 16	Dec. 26	341
Palestine, Tex	Mar. 19	Dec. 7 [1]	Apr. 5	Mar. 13	Oct. 20	Nov. 13	245
San Antonio, Tex	---do	Dec. 8	---do	Feb. 23	Oct. 30	Nov. 29	279
Taylor, Tex	---do	Dec. 1 [1]	---do	Mar. 5	---do	Nov. 26	266
Oklahoma City, Okla	---do	Dec. 1	Apr. 30	Mar. 30	Oct. 7	Nov. 3	218
Fort Smith, Ark	---do	Nov. 23	Apr. 17	Mar. 23	Oct. 9	Nov. 6	228
Little Rock, Ark	---do	---do	Apr. 26	Mar. 18	Oct. 22	Nov. 14	241
Havre, Mont	Apr. 16	Sept. 20	June 6	May 14	Aug. 25	Sept. 20	129
Helena, Mont	May 13	Sept. 19	June 9	May 7	---do	Sept. 29	145
Kalispell, Mont	Apr. 3	Sept. 20	June 7	May 10	Sept. 6	Sept. 30	143
Miles City, Mont	Apr. 16	Sept. 21	May 31	May 5	Sept. 7	Oct. 2	150
Cheyenne, Wyo	May 13 [1]	Sept. 15	June 13	May 18	Aug. 25	Sept. 22	127
Lander, Wyo	Apr. 19	---do	June 20	---do	Aug. 23	Sept. 18	123
Sheridan, Wyo	May 13	Sept. 21	June 6	May 20	Aug. 25	Sept. 20	123
Yellowstone Park, Wyo	June 9	Sept. 9	June 22	May 21	---do	Sept. 16	118
Denver, Colo	May 13 [1]	Sept. 26	June 6	May 3	Sept. 12	Oct. 10	160
Grand Junction, Colo	Apr. 6 [1]	Oct. 24	May 14	Apr. 16	Sept. 14	Oct. 19	186
Pueblo, Colo	Apr. 6	Oct. 28	June 2	Apr. 24	Sept. 12	Oct. 10	169
Roswell, N. Mex	Mar. 19	Nov. 22	May 7	Apr. 10	Oct. 10	Oct. 28	201
Santa Fe, N. Mex	Apr. 7 [1]	Nov. 2 [1]	May 23	Apr. 25	Sept. 25	Oct. 19	177
Flagstaff, Ariz	June 14 [1]	Sept. 26	June 17	May 31	Sept. 12	Sept. 24	116
Phoenix, Ariz	None	Nov. 30	Mar. 31	Feb. 10	Nov. 5	Dec. 3	296
Tucson, Ariz	Apr. 4 [1]	Nov. 21 [1]	Apr. 4	Mar. 11	Oct. 22	Nov. 9	243
Yuma, Ariz	None	None	Mar. 15	Jan. 20	Nov. 19	Dec. 20	334
Modena, Utah	June 2 [1]	Sept. 25	July 3	May 21	Sept. 5	Sept. 29	131
Salt Lake City, Utah	Apr. 2 [1]	Nov. 21 [1]	June 18	Apr. 18	Sept. 22	Oct. 20	185
Reno, Nev	Apr. 4 [1]	Sept. 26	June 13	May 14	Sept. 6	Oct. 6	145
Winnemucca, Nev	Apr. 4	---do	June 22	---do	Aug. 22	Sept. 27	136
Boise, Idaho	---do	---do	June 16	Apr. 27	Sept. 11	Oct. 12	168
Lewiston, Idaho	Apr. 4 [1]	Sept. 25 [1]	May 10	Apr. 6	Sept. 21	Oct. 24	201
Pocatello, Idaho	Apr. 3 [1]	Sept. 27	June 1	Apr. 29	Sept. 8	Oct. 6	160
Seattle, Wash	Jan. 8	Dec. 27	May 10	Mar. 16	Oct. 18	Nov. 22	251
Spokane, Wash	Apr. 15 [1]	Sept. 25	June 8	Apr. 14	Sept. 7	Oct. 13	182
Walla Walla, Wash	Mar. 24	Oct. 16	May 9	Mar. 31	Sept. 24	Nov. 4	218
Baker, Oreg	Apr. 2	Sept. 26	June 23	May 17	Aug. 30	Sept. 29	135
Portland, Oreg	None	None	May 2	Mar. 15	Oct. 13	Nov. 21	251
Roseburg, Oreg	None	None	May 24	Apr. 8	Sept. 24	Nov. 11	217
Eureka, Calif	None	None	Apr. 7	Mar. 16	Nov. 11	Dec. 18	277
Fresno, Calif	None	Dec. 3	Apr. 14	Feb. 22	Oct. 31	Nov. 30	281
Independence, Calif	Feb. 27 [1]	Nov. 21 [1]	May 24	Apr. 13	Sept. 24	Oct. 27	197
Los Angeles, Calif	None	None	Feb. 17	(2)	Nov. 2	(2)	(2)
Red Bluff, Calif	None	Dec. 1 [1]	May 9	Mar. 8	Nov. 5	Dec. 5	272
Sacramento, Calif	None	None	May 7	Feb. 19	Nov. 11	Nov. 29	283
San Bernardino, Calif	Apr. 4 [1]	Nov. 22 [1]	Apr. 23	Mar. 8	Oct. 23	Nov. 22	259
San Diego, Calif	None	None	Jan. 20	(2)	Dec. 26	(2)	(2)
San Francisco, Calif	None	None	Mar. 26	Jan. 13	Dec. 4	Dec. 29	350

[1] Temperature 32° F. or below.

[2] Frosts do not occur every year.

Weather Bureau.

TABLE 498.—*Monthly and annual rainfall by States, 1934*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
	In.	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*
Alabama	3.71	4.73	6.10	3.68	3.91	4.79	6.55	6.01	2.02	6.45	3.87	3.41	55.23
Arizona	.33	.80	.25	.57	.54	.19	1.25	3.17	.58	.09	.86	1.71	10.34
Arkansas	2.86	2.00	6.53	3.51	3.36	2.88	1.66	2.75	5.46	.79	6.89	3.78	42.47
California	2.08	3.57	.80	.52	.73	.74	.05	.11	.33	1.95	3.90	3.20	17.98
Colorado	.22	1.62	.49	.93	1.35	.94	1.11	1.59	1.11	.10	.83	.60	10.89
Florida	1.49	3.85	3.39	4.12	6.81	10.22	7.30	5.40	4.59	3.64	1.52	1.00	53.33
Georgia	2.61	4.14	5.31	3.99	5.45	5.08	4.69	5.14	2.57	4.21	1.77	2.64	47.60
Idaho	2.24	.99	1.88	.82	.61	1.48	.23	.21	.56	1.87	2.46	2.03	15.38
Illinois	1.18	.89	2.34	1.81	1.06	3.03	3.27	3.79	6.64	1.66	5.71	1.74	33.12
Indiana	1.38	.85	2.97	1.66	1.14	3.55	2.42	4.68	5.67	.53	2.87	2.00	29.72
Iowa	.83	.47	1.09	1.07	1.02	3.49	3.86	2.84	5.07	1.52	5.03	.57	26.86
Kansas	.43	1.15	.70	1.27	2.82	2.73	1.13	1.32	4.18	1.29	2.58	.42	20.02
Kentucky	1.85	2.20	4.83	2.14	1.67	4.58	4.34	4.76	4.82	.88	2.85	2.18	37.10
Louisiana	6.86	4.72	6.17	3.19	5.38	4.80	5.00	5.44	3.57	2.19	8.00	3.91	59.23
Maryland and Delaware	2.49	2.94	4.45	2.65	4.85	3.25	3.41	4.99	9.33	1.35	3.57	2.75	46.03
Michigan	1.23	.62	1.84	1.58	1.23	2.18	1.46	2.47	5.14	1.97	3.88	1.59	25.59
Minnesota	.55	.24	.71	1.12	.99	4.02	2.24	2.07	3.41	2.60	1.43	.95	20.33
Mississippi	3.37	4.88	5.96	2.39	3.64	5.65	4.76	3.91	4.00	2.60	7.74	4.53	53.43
Missouri	1.24	1.27	2.36	2.41	1.89	2.85	1.11	3.90	7.39	2.45	5.68	1.66	34.21
Montana	.72	.28	1.27	.49	.67	2.99	.74	.33	1.13	1.14	.55	.91	11.22
Nebraska	.29	.85	.72	.54	1.06	3.07	1.11	1.67	2.51	.91	1.22	.49	14.44
Nevada	.47	.93	.45	.43	.37	.91	.20	.30	.27	.82	1.06	.92	7.13
New Jersey	2.55	2.77	3.31	3.89	4.63	3.68	3.65	3.61	9.00	2.49	2.91	2.90	45.39
New Mexico	.21	.58	.47	.49	1.16	.52	1.34	2.57	.91	.55	.81	.47	10.08
New York	2.80	1.69	2.83	3.41	2.16	3.54	2.88	2.38	5.38	2.48	2.77	2.79	35.11
North Carolina	2.17	3.96	5.94	3.60	4.54	4.89	6.63	5.63	6.12	2.43	4.98	2.85	53.74
North Dakota	.20	.06	.49	.44	.35	3.04	1.22	1.15	.96	1.01	.28	.30	9.50
Ohio	1.55	1.03	2.81	2.25	.79	3.52	2.64	4.20	3.82	.59	1.92	1.44	26.56
Oklahoma	1.75	1.20	1.78	2.64	2.62	2.45	.64	2.57	6.13	1.33	3.63	.72	27.46
Oregon	3.81	1.27	2.40	1.46	.89	1.53	.15	.26	.63	3.29	5.66	4.52	25.87
Pennsylvania	2.54	1.31	2.96	3.06	2.51	3.64	4.01	4.94	6.58	1.46	3.61	2.55	39.17
South Carolina	1.88	3.83	4.28	3.03	5.58	4.92	4.46	5.02	3.55	3.63	2.73	2.74	45.65
South Dakota	.25	.17	.96	.50	.69	3.35	1.88	1.32	2.11	1.27	.47	.30	13.27
Tennessee	2.91	2.94	8.13	2.35	2.81	5.25	4.42	4.85	4.35	2.38	4.10	2.85	47.34
Texas	3.72	1.67	3.35	3.14	1.88	.81	1.96	1.27	2.79	.42	3.95	1.82	26.78
Utah	.79	1.41	.39	.42	.37	.51	.65	.99	.46	.58	1.75	1.20	9.52
Virginia	1.62	3.53	5.18	2.76	4.11	3.53	5.07	4.43	6.83	1.54	4.46	2.63	45.69
Washington	7.13	1.54	3.99	1.42	1.97	.67	.72	.54	1.77	5.07	7.25	6.20	38.27
West Virginia	2.75	1.86	4.26	2.58	2.08	3.45	4.56	5.37	4.19	1.01	3.30	2.20	37.61
Wisconsin	.85	.35	1.50	1.96	1.47	4.02	2.85	2.76	6.05	2.31	5.15	1.29	30.56
Wyoming	.52	.70	.90	1.32	.52	1.83	1.10	.68	1.14	.79	.64	.74	10.87
New England [1]	3.31	2.92	2.99	4.62	2.94	4.49	3.17	2.36	6.93	3.29	3.34	43.02	

[1] Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

Weather Bureau.

TABLE 499.—*National forest areas, by regions, June 30, 1934*

Region	Name	Region headquarters	Gross area	Alienated lands	Net area
			Acres	*Acres*	*Acres*
1	Northern region	Missoula, Mont	26, 560, 286	3, 768, 837	22, 791, 449
2	Rocky Mountain region	Denver, Colo	21, 214, 607	1, 831, 473	19, 383, 134
3	Southwestern region	Albuquerque, N. Mex	22, 017, 681	2, 085, 575	19, 932, 106
4	Intermountain region	Ogden, Utah	30, 783, 865	1, 594, 189	29, 189, 676
5	California region	San Francisco, Calif	24, 210, 342	4, 857, 503	19, 352, 839
6	North Pacific region	Portland, Oreg	26, 914, 005	3, 792, 889	23, 121, 116
7	Eastern region	Washington, D. C	3, 605, 727	1, 764, 383	1, 841, 344
8	Southern region	Atlanta, Ga	6, 799, 717	3, 346, 787	3, 452, 930
9	North Central region	Milwaukee, Wis	4, 533, 860	2, 349, 630	2, 184, 230
10	Alaska region	Juneau, Alaska	21, 396, 933	54, 633	21, 342, 300
	Total		188, 037, 023	25, 445, 899	162, 591, 124

Headquarters of national forests:

Region 1: Federal Building, Missoula, Mont.; embracing Montana, northeastern Washington, northern Idaho, and northwestern South Dakota.

Region 2: Post Office Building, Denver, Colo.; embracing Colorado, eastern Wyoming, South Dakota, Nebraska, and western Oklahoma.

Region 3: Federal Building, Albuquerque, N. Mex.; embracing Arizona and New Mexico.

Region 4: Forest Service Building, Ogden, Utah; embracing Utah, southern Idaho, western Wyoming, and Nevada.

Region 5: 85 Second Street, San Francisco, Calif.; embracing California and southwestern Nevada.

Region 6: Post Office Building, Portland, Oreg.; embracing Washington and Oregon.

Region 7: Victor Building, Washington, D. C.; embracing Kentucky, Maine, New Hampshire, Pennsylvania, Puerto Rico, Vermont, Virginia, and West Virginia.

Region 8: Glenn Building, Atlanta, Ga.; embracing Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, eastern Oklahoma, South Carolina, Tennessee, Texas, and portion of Virginia.

Region 9: Federal Building, Milwaukee, Wis.; embracing Illinois, Michigan, Minnesota, Missouri, and Wisconsin.

Region 10: Federal and Territorial Building, Juneau, Alaska; located in Alaska.

Forest Service; see 1931 Yearbook, table 554, for lists of national monuments, national game refuges, and range reserves. For later information, address the Forest Service, Washington, D. C.

TABLE 500.—*Saw-timber area, stand, growth, and depletion in the United States*

Region	Area	Stand [1]	Annual growth [2]	Annual depletion			
				Cut [3]	Destroyed by fire [4]	Other destruction [5]	Total
	Thousand acres	*Million ft. b. m.*	*Million ft. b. m.*	*Million ft. b. m.*	*Million ft. b. m.*	*Million ft. b. m.*	*Million ft. b. m.*
New England	13,860	57,875	764	1,648	2	255	1,905
Middle Atlantic [6]	7,294	26,150	575	1,061	7	14	1,082
Lake	5,095	35,887	116	2,709	4	35	2,748
Central [7]	21,224	34,622	727	5,454	12	59	5,525
South [8]	57,265	199,297	6,799	25,233	395	711	26,339
Eastern regions	104,738	353,831	8,981	36,105	420	1,074	37,599
Pacific coast	44,140	1,041,628	1,785	16,487	564	1,749	18,800
North Rocky Mountain [9]	17,026	146,388	576	1,510	393	474	2,377
South Rocky Mountain [10]	22,741	125,956	389	540	13	105	658
Western regions	83,907	1,313,972	2,750	18,537	970	2,328	21,835
Total	188,645	1,667,803	11,731	54,642	1,390	3,402	59,434

[1] Standing timber of all species of size suitable for lumber, according to the local practice in each region as of 1930.
[2] Current annual growth of timber of saw-timber size.
[3] Cut for lumber and other commodities, averaged for the period 1925–29.
[4] Saw timber destroyed, averaged for the period 1925–29.
[5] Destruction due to insects, disease, windfall, etc., averaged for the period 1919–29.
[6] Includes New York, Pennsylvania, New Jersey, Delaware, and Maryland.
[7] Includes Ohio, Indiana, Illinois, Iowa, Kansas, Missouri, Nebraska, Tennessee, Kentucky, and West Virginia.
[8] Includes the coastwise States, Virginia to Texas, inclusive; also Arkansas and Oklahoma.
[9] Includes Idaho and Montana.
[10] Includes the other Rocky Mountain States and South Dakota (Black Hills).

Forest Service; from a National Plan for American Forestry, 1933.

TABLE 501.—*Production of lumber, by States, 1929 and 1931–33*

State	1929	1931	1932	1933	State	1929	1931	1932	1933
	Million ft. b. m.	*Million ft. b. m.*	*Million ft. b. m.*	*Million ft. b. m.*		*Million ft. b. m.*	*Million ft. b. m.*	*Million ft. b. m.*	*Million ft. b. m.*
Alabama	2,059	732	544	757	New Jersey	16	7	5	5
Arizona	175	85	58	90	New Mexico	148	59	72	89
Arkansas	1,348	508	277	514	New York	160	74	39	36
California	[1] 2,063	958	[1] 681	785	North Carolina	1,202	501	383	513
Colorado	71	48	39	34	Ohio	176	53	32	38
Connecticut	30	13	5	7	Oklahoma	200	77	65	105
Delaware	10	4	4	1	Oregon	4,784	2,628	1,604	2,256
Florida	1,137	577	320	439	Pennsylvania	314	123	73	93
Georgia	1,386	460	264	473	Rhode Island	6	3	3	3
Idaho	1,029	500	248	316	South Carolina	1,068	450	354	422
Illinois	38	18	8	8	South Dakota	61	27	17	30
Indiana	170	53	27	42	Tennessee	764	263	128	169
Kentucky	339	111	51	47	Texas	1,452	556	405	594
Louisiana	2,232	949	567	836	Utah	5	6	5	8
Maine	258	152	102	105	Vermont	120	61	40	30
Maryland	55	29	18	11	Virginia	708	311	227	320
Massachusetts	72	43	39	24	Washington	7,302	3,908	2,261	3,106
Michigan	571	257	111	160	West Virginia	633	247	135	185
Minnesota	357	95	58	49	Wisconsin	843	360	120	186
Mississippi	2,669	863	531	792	Wyoming	26	17	21	11
Missouri	228	75	35	41	All other	[2] 20	[2] 10	[2] 3	[2] 4
Montana	389	158	111	125					
New Hampshire	192	94	61	101	Total	[3] 36,886	[3] 16,523	[3] 10,151	[3] 13,960

[1] Includes the cut of Nevada.
[2] Includes the cut of Iowa, Kansas, and Nebraska.
[3] Mills cutting less than 50,000 feet each year excluded.

Forest Service, in cooperation with the Bureau of the Census.

TABLE 502.—*Stumpage: Prices per 1,000 feet, log scale, 1933*

SOFTWOODS

State	Pine			Douglas fir	Firs (true)[3]	Spruce[4]	Hemlock[5]	Cypress	Cedar[6]
	White[1]	Southern yellow[2]	Western yellow						
Alabama		$3.47							$7.17
Arizona			$2.39						
Arkansas		2.72						$2.38	
California	$3.27		2.44	$1.60	$0.59			[7] 1.98	.77
Colorado			1.98	2.23	2.00	$2.27			
Connecticut	4.80						$3.31		
Florida		5.04						4.71	
Georgia		2.23						4.72	
Idaho	6.72		2.09	.70	1.00	1.00			1.00
Kentucky									9.00
Louisiana		3.38						3.98	
Maine	3.94				4.00	4.19	3.78		6.50
Maryland		4.51							
Massachusetts	5.46						4.63		3.00
Michigan	7.77				1.34	5.00	1.82		1.72
Minnesota	3.85				.75	1.87			
Mississippi		3.50						6.64	
Missouri		3.38						4.55	
Montana			2.19	.60					
New Hampshire	4.92					3.71	4.00		
New Mexico			2.25	1.00					
New York	7.49					10.00	4.93		
North Carolina	3.69	3.58					.75	3.32	1.00
Oklahoma		2.02							
Oregon	3.27		2.78	1.35	1.52	2.12	.63		7.74
Pennsylvania	4.69						5.67		
Rhode Island	5.00								
South Carolina		2.96							
South Dakota			3.27						
Tennessee	4.32	3.03						3.00	12.72
Texas		3.08							
Utah			2.50						
Vermont	3.48					5.63	2.50		
Virginia	4.00	3.37					3.00		
Washington	3.68		2.03	2.69	.53	3.15	1.00		2.82
West Virginia		5.00					.84		
Wisconsin	8.25				1.11	2.56	2.66		2.00
Wyoming			2.74						

[1] Northern white pine in States east of the Great Plains. Western white pine in Idaho, Montana, and Washington. Sugar pine in Oregon and California.

[2] Includes all sales of southern pines.

[3] Balsam fir in Eastern and Lake States. White fir in Western States.

[4] Red, black, and white spruce in Eastern States. Sitka spruce in California, Oregon, and Washington, Engelmann spruce in Colorado, Idaho, Utah, and Wyoming.

[5] Eastern and western hemlock for Eastern and Western States, respectively.

[6] Northern white cedar in Northeastern and Lake States. Port Orford cedar in Oregon. Eastern red cedar in Alabama, North Carolina, and Tennessee. Incense cedar in California. Western red cedar in other States.

[7] Redwood.

TABLE 502.—*Stumpage: Prices per 1,000 feet, log scale, 1933*—Continued

HARDWOODS

	Oak	Maple	Elm	Gum	Cottonwood [8]	Yellow poplar	Birch	Basswood	Hickory	Beech
Alabama	$4.05	-------	-------	$2.13	$6.00	$7.94	-------	--------	$2.00	$3.00
Arkansas	3.74	$3.00	$4.00	2.59	4.05	-------	-------	--------	3.38	-------
Connecticut	4.29	4.00	-------	-------	--------	--------	-------	$4.66	--------	-------
Florida	1.88	.93	-------	1.09	--------	--------	-------	--------	6.87	-------
Georgia	2.96	--------	-------	2.50	--------	2.50	-------	--------	--------	-------
Illinois	5.80	-------	3.00	-------	3.83	15.00	-------	12.00	--------	-------
Indiana	13.91	11.94	9.73	8.08	5.18	10.64	-------	16.13	12.24	5.82
Kentucky	5.37	--------	--------	4.00	--------	10.25	-------	4.00	9.42	4.13
Louisiana	4.55	--------	--------	3.31	6.00	--------	--------	--------	4.75	1.50
Maine	10.00	4.00	5.00	-------	5.00	--------	$5.32	--------	--------	-------
Maryland	5.41	--------	-------	-------	--------	5.00	-------	--------	--------	-------
Massachusetts	4.00	-------	-------	-------	--------	--------	-------	--------	--------	-------
Michigan	9.31	5.60	5.14	-------	2.00	--------	6.82	6.88	--------	4.53
Minnesota	4.62	--------	-------	-------	1.56	--------	4.00	3.00	--------	-------
Mississippi	3.53	--------	-------	3.04	3.87	2.17	-------	--------	7.07	-------
Missouri	2.01	3.00	-------	3.00	--------	--------	3.00	--------	2.00	-------
New Hampshire	7.50	5.46	-------	-------	--------	--------	4.34	--------	--------	-------
New Jersey	10.00	-------	-------	-------	--------	--------	-------	--------	--------	-------
New York	5.57	7.01	-------	-------	--------	--------	7.00	5.05	--------	4.44
North Carolina	3.20	4.93	-------	2.80	--------	3.49	-------	--------	--------	-------
Ohio	8.53	9.68	9.22	2.00	5.67	13.47	-------	7.57	8.92	4.79
Oklahoma	6.81	-------	-------	-------	--------	--------	-------	--------	--------	-------
Oregon	-------	2.57	-------	-------	1.12	--------	-------	--------	--------	-------
Pennsylvania	5.51	3.68	8.00	-------	--------	5.10	2.67	12.00	3.03	3.20
Rhode Island	4.00	--------	-------	-------	--------	--------	-------	--------	--------	-------
South Carolina	4.28	--------	-------	3.78	--------	--------	-------	--------	--------	-------
Tennessee	4.88	--------	5.00	6.12	--------	5.15	-------	--------	6.00	-------
Texas	4.41	-------	-------	2.00	--------	--------	-------	--------	--------	-------
Vermont	-------	5.24	-------	-------	--------	--------	5.00	--------	--------	3.00
Virginia	4.30	--------	-------	2.97	--------	4.72	-------	--------	--------	-------
Washington	5.00	1.81	-------	-------	1.00	--------	-------	--------	--------	-------
West Virginia	4.21	3.00	-------	-------	--------	5.12	-------	2.64	--------	.91
Wisconsin	7.42	5.68	5.76	-------	3.50	--------	7.12	5.83	--------	1.00

[8] Includes aspen.

Forest Service, in cooperation with the Bureau of the Census.

TABLE 503.—*Logs: Prices per 1,000 feet, log scale, f. o. b. manufacturing plant 1933*

SOFTWOODS

State	Pine			Douglas fir	Firs (true)[3]	Spruce[4]	Hemlock[5]	Cypress	Cedar[6]
	White[1]	Southern yellow[2]	Western yellow						
Alabama		$9.20						$10.85	$24.16
Arkansas		8.38						10.56	
California			$10.46	$10.72	$6.55	$12.00		[7] 7.34	7.92
Florida		11.21						17.25	
Georgia		9.21						16.56	
Idaho	$13.42		7.43	13.13	7.40				7.38
Indiana		10.57							
Kentucky									35.70
Louisiana		11.29						11.85	
Maine	12.66				13.63	12.88	$11.50		14.64
Massachusetts	9.89						11.00		
Michigan	15.05				15.48	20.37	11.61		9.00
Minnesota	21.13				7.00				
Mississippi		7.91						12.45	
Missouri		6.13						10.78	
Montana	13.21		17.45	24.79		10.00			
New Hampshire	10.89					11.51	10.62		
New York	13.91					13.95	14.45		
North Carolina	10.00	9.57					8.74	12.45	
Oklahoma		6.10							
Oregon	9.96		9.14	9.83	7.35	10.36	7.81		9.87
Pennsylvania	13.34	24.00					13.49		
South Carolina		9.16						11.84	
South Dakota			15.16						
Tennessee	13.07	6.74					10.00	13.07	21.53
Texas		9.66						11.40	
Utah			9.00						
Vermont	10.59				10.00	14.00	10.91		
Virginia	10.00	10.03						17.04	46.67
Washington	13.87		8.74	11.10	10.06	10.41	7.79		11.04
Wisconsin	15.31				8.49	12.25	12.81		8.00

[1] Western white pine in Idaho, Montana, and Washington. Sugar pine in Oregon. Northern white pine in other States.

[2] Includes all sales of southern pines.

[3] White fir in California, Idaho, Oregon, and Washington. Balsam fir in other States.

[4] Engelmann spruce in Colorado and Montana. Sitka spruce in California, Oregon, and Washington. Eastern spruce in other States.

[5] Eastern and western hemlock for Eastern and Western States, respectively.

[6] Western red cedar in Idaho, Oregon, and Washington. Northern white cedar in Maine, Wisconsin, and Michigan. Incense cedar in California. Eastern red cedar in other States.

[7] Redwood.

TABLE 503.—*Logs: Prices per 1,000 feet, log scale, f. o. b. manufacturing plant, 1933*—Continued

HARDWOODS

	Oak	Maple	Elm	Gum	Cottonwood [8]	Yellow poplar	Birch	Basswood	Hickory	Beech
Alabama	$12.44	-------	-------	$10.84	$10.52	$14.07	-------	-------	$17.39	$8.13
Arkansas	12.04	$11.58	$10.61	14.01	10.82	9.50	-------	$10.00	17.60	9.50
Connecticut	20.95	29.00	-------	-------	-------	-------	-------	-------	-------	-------
Florida	13.81	-------	12.00	13.15	-------	-------	-------	-------	28.67	-------
Georgia	12.84	14.00	-------	11.25	12.17	12.61	-------	-------	-------	-------
Illinois	24.22	13.00	13.69	13.03	11.62	22.06	$12.78	-------	16.00	-------
Indiana	29.33	27.02	12.21	24.94	13.55	23.36	8.00	20.62	19.53	15.15
Iowa	15.00	-------	-------	-------	10.00	-------	-------	12.00	-------	-------
Kentucky	24.07	29.92	10.00	25.16	17.50	33.52	33.00	32.22	-------	-------
Louisiana	13.60	10.00	10.01	11.95	9.88	20.35	-------	10.45	14.50	8.98
Maine	19.80	-------	-------	-------	-------	-------	17.62	15.00	-------	-------
Maryland	13.38	-------	-------	-------	-------	27.74	-------	-------	-------	-------
Massachusetts	15.00	15.00	-------	-------	-------	-------	16.34	-------	-------	-------
Michigan	17.68	17.70	16.93	-------	14.07	-------	20.25	17.32	21.56	13.09
Minnesota	14.09	-------	-------	-------	9.69	-------	-------	10.50	-------	-------
Mississippi	10.33	11.73	11.62	11.38	10.49	12.75	-------	10.83	14.90	10.42
Missouri	11.45	6.00	13.12	7.11	10.00	-------	-------	-------	12.33	-------
New Hampshire	15.82	21.05	-------	-------	-------	-------	23.00	-------	-------	11.00
New Jersey	25.70	-------	-------	-------	-------	-------	-------	-------	-------	-------
New York	16.41	21.98	17.24	-------	30.00	-------	18.72	16.78	-------	14.50
North Carolina	12.93	13.30	-------	12.69	9.00	17.55	-------	-------	20.00	-------
Ohio	18.81	21.19	22.27	17.00	7.00	19.10	-------	20.32	28.01	13.51
Oklahoma	19.32	-------	-------	-------	-------	-------	-------	-------	-------	-------
Oregon	20.00	12.83	-------	-------	7.01	-------	-------	[9] 9.34	-------	-------
Pennsylvania	16.54	18.89	16.97	13.77	-------	35.02	31.32	29.79	14.62	16.11
Rhode Island	30.00	-------	-------	-------	-------	-------	-------	-------	-------	-------
South Carolina	12.34	11.77	11.00	11.33	10.07	10.49	-------	-------	-------	-------
Tennessee	19.16	14.22	8.53	11.26	10.19	15.78	-------	10.75	22.80	9.85
Texas	15.66	-------	-------	-------	11.00	-------	-------	-------	-------	-------
Vermont	-------	16.72	13.84	-------	8.00	-------	17.84	14.38	-------	14.09
Virginia	18.86	-------	-------	18.37	-------	17.36	-------	-------	-------	-------
Washington	38.41	13.11	-------	-------	8.41	-------	14.82	[9] 10.61	-------	-------
West Virginia	27.31	-------	-------	-------	-------	-------	-------	-------	-------	-------
Wisconsin	27.98	18.57	15.70	-------	10.09	27.00	22.84	21.54	-------	16.00

[8] Includes aspen.

[9] Alder.

Forest Service, in cooperation with the Bureau of the Census.

TABLE 504.—*Average value of lumber at the mill per 1,000 feet board measure, in stated years*

Kind of wood	1899	1909	1919	1927	1929	1930	1931	1932	1933
Softwoods:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Balsam fir	[1]	13.99	32.23	25.92	25.40	26.72	19.34	19.32	19.79
Cedar	10.91	19.95	33.80	34.39	34.83	31.14	24.08	24.55	25.91
Cypress	13.32	20.46	38.38	39.91	35.29	33.10	30.14	24.62	26.30
Douglas fir	8.67	12.44	24.62	19.45	20.05	16.91	12.05	10.63	13.57
Hemlock	9.98	13.95	29.16	19.06	18.90	17.04	14.13	12.39	14.27
Larch (tamarack)	8.73	12.68	23.39	17.69	18.35	17.18	14.18	10.76	13.34
Lodgepole pine	[1]	16.25	29.98	20.82	17.97	17.64	14.46	12.45	16.23
Redwood	10.12	14.80	30.04	33.81	31.00	30.33	29.82	24.33	26.29
Spruce	11.27	16.91	30.76	26.59	28.64	23.66	23.00	17.73	18.89
Sugar pine	12.30	18.14	35.99	43.22	43.08	38.10	28.76	26.26	27.95
Ponderosa pine	9.70	15.39	27.75	26.04	26.47	23.52	20.48	16.88	18.57
White fir	[1]	13.10	25.66	19.92	20.63	17.57	14.94	12.23	15.30
White pine	12.69	18.16	32.83	29.90	29.87	27.81	24.71	21.58	21.45
Yellow pine	8.46	12.69	28.71	23.77	25.66	21.06	16.99	13.32	17.91
Hardwoods:									
Ash	15.84	24.44	52.69	43.82	43.14	39.72	41.06	28.74	33.23
Basswood	12.84	19.50	40.03	89.84	39.88	35.51	28.54	23.81	29.19
Beech	[1]	13.25	29.98	27.21	28.39	25.89	22.93	17.97	22.75
Birch	12.50	16.95	35.79	41.03	39.35	36.39	30.95	26.26	29.02
Chestnut	13.37	16.12	32.30	29.35	29.51	23.91	22.50	17.87	23.01
Cottonwood	10.37	18.05	32.24	30.92	29.70	22.73	19.54	16.49	22.18
Elm	11.47	17.52	36.39	36.22	35.28	30.20	25.37	19.07	23.09
Gum, red and sap	9.63	13.20	32.68	32.81	34.42	27.67	22.68	16.84	23.01
Hickory	18.78	30.80	44.37	37.08	40.33	33.00	32.65	29.85	26.27
Maple	11.83	15.77	35.56	35.35	36.93	34.54	28.80	22.82	30.51
Oak	13.78	20.50	37.87	35.72	38.43	29.29	27.68	22.84	28.53
Sycamore	11.04	14.87	30.32	29.31	30.07	26.54	22.40	18.71	22.78
Tupelo	[1]	11.87	28.42	24.45	25.39	23.47	19.05	17.40	22.01
Walnut	36.49	43.79	72.13	111.64	119.15	100.75	90.44	57.87	77.61
Yellow poplar	14.03	25.39	41.65	38.58	40.66	35.19	30.02	26.02	29.91
All kinds	11.13	15.38	30.21	25.80	26.94	22.81	18.56	15.12	18.55

[1] No data available.

Forest Service, in cooperation with the Bureau of the Census.

TABLE 505.—*Pulpwood consumption, wood pulp and paper production by States, 1930–33*

State	Pulpwood consumption				Wood pulp production				Paper production			
	1930	1931	1932	1933	1930	1931	1932	1933	1930	1931	1932	1933
	1,000 cords	*1,000 cords*	*1,000 cords*	*1,000 cords*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
California	[1]				[1]				231	192	139	167
Louisiana	423	431	449	584	244	261	289	383	278	295	324	394
Maine	1,203	1,112	949	980	905	889	765	779	1,029	956	830	837
Massachusetts	43	33	20	20	29	24	14	12	491	406	328	350
Michigan	280	251	216	252	193	150	153	154	991	903	734	893
Minnesota	230	198	211	235	182	148	134	154	279	241	208	233
New Hampshire	243	151	[2]	155	138	90	[2]	79	158	130	117	134
New York	763	583	438	479	596	467	354	394	1,348	1,160	912	993
Ohio	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	860	789	612	744
Oregon	[3] 351	320	265	242	[3] 249	238	187	189	129	200	183	198
Pennsylvania	353	293	238	224	189	160	130	124	666	608	545	611
Tennessee	75	95	[2]	[2]	53	68	[2]	[2]	97	95	82	87
Vermont	24	25	[2]	16	25	26	[2]	18	69	66	60	68
Virginia	378	368	338	388	216	223	208	242	262	275	253	311
Washington	1,000	1,026	688	1,095	566	580	421	584	395	375	343	382
West Virginia	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	35	44	37	46
Wisconsin	1,169	957	797	865	701	586	476	532	835	727	633	718
All other States	661	880	1,024	1,027	344	499	629	649	2,016	1,920	1,658	2,024
Total	7,196	6,723	5,633	6,562	4,630	4,409	3,760	4,293	10,169	9,382	7,998	9,190

[1] Included with Oregon.
[2] Included in "All other States."
[3] Includes California.

Forest Service, in cooperation with the Bureau of the Census.

TABLE 506.—*Pulpwood consumption, wood pulp and paper production of the United States, 1899, 1904–11, 1914, and 1916–33*

Year	Pulpwood consumption	Wood-pulp production	Paper production	Year	Pulpwood consumption	Wood-pulp production	Paper production
	Cords	*Short tons*	*Short tons*		*Cords*	*Short tons*	*Short tons*
1899	1,986,310	1,179,525	2,167,593	1920	6,114,072	3,821,704	7,334,614
1904	3,050,717	1,921,768	3,106,696	1921	4,557,179	2,875,601	5,356,317
1905	3,192,123			1922	5,548,842	3,521,644	7,017,800
1906	3,661,176			1923	5,872,870	3,788,672	8,029,482
1907	3,962,660	2,547,879		1924	5,768,082	3,723,266	
1908	3,346,953	2,118,947		1925	6,093,821	3,962,217	9,182,204
1909	4,001,607	2,495,523	4,216,708	1926	6,766,007	4,394,766	[1] 9,794,086
1910	4,094,306	2,533,976		1927	6,750,935	4,313,403	10,002,070
1911	4,328,052	2,686,134		1928	7,160,100	4,510,800	10,403,338
1914	4,470,763	2,893,150	5,270,047	1929	7,645,011	4,862,885	11,140,235
1916	5,228,558	3,435,001		1930	7,195,524	4,630,308	10,169,140
1917	5,480,075	3,509,939	5,919,647	1931	6,722,766	4,409,344	9,381,850
1918	5,250,794	3,313,861	6,051,523	1932	5,633,123	3,760,267	7,997,872
1919	5,477,832	3,517,952	6,190,361	1933	6,561,674	4,293,344	9,190,017

[1] Estimated by the American Paper and Pulp Association.

Forest Service; compiled from bulletins of the Census Bureau, the Forest Service, and the Federal Trade Commission.

TABLE 507.—*Pulpwood consumption, by kinds, 1909, 1919, and 1929–33*

Kinds of wood	1909	1919	1929	1930	1931	1932	1933 [1]
Spruce:	*Cords*	*Cords*	*Cords*	*Cords*	*Cords*	*Cords*	*Cords*
Domestic	1,653,249	2,313,419	2,074,267	1,844,937	1,651,051	1,423,836	1,495,061
Imported	768,332	873,795	1,029,913	888,255	676,339	608,171	576,000
Hemlock:							
Domestic	559,657	795,154	1,309,170	[2]1,222,961	[2]1,191,048	[2] 806,230	1,101,642
Imported			15,379				10,914
Pine:							
Southern yellow	([3])	234,463	1,036,272	1,030,273	1,294,503	1,279,832	1,560,414
Jack	([3])	51,581	[2] 205,760	200,970	[2] 159,273	[2] 154,214	178,974
Miscellaneous	90,885	7,566					
Poplar:							
Domestic	302,876	180,160	329,466	291,897	286,603	192,461	[2] 333,438
Imported	25,622	158,220	157,829	159,092	94,238	85,693	
Balsam fir:							
Domestic	95,366	181,840	317,552	330,548	338,790	243,224	261,466
Imported		106,974	45,412	48,935	55,601	47,835	41,465
Yellow poplar		72,605	129,697	107,795	73,504	74,151	([3])
White fir	37,176	31,138	111,054	90,652	109,277	70,968	154,847
Beech, birch, and maple	31,390	[4] 183,426	76,950	68,848	69,681	65,958	93,032
Gum		30,355	39,685	41,825	22,440	17,553	([3])
Tamarack (larch)		44,042	51,835	40,054	35,433	15,652	21,844
Other woods	188,077	38,013	153,485	232,980	126,942	[2] 105,868	252,436
Slabs and mill waste	248,977	175,081	561,285	595,502	558,043	441,447	480,141
Total	4,001,607	5,477,832	7,645,011	7,195,524	6,722,766	5,635,133	6,561,674

[1] Preliminary.
[2] Includes imported wood.
[3] Included in "Miscellaneous pines."
[4] Includes chestnut.
[5] Included in "other woods."

Forest Service, in cooperation with the Bureau of the Census.

TABLE 508.—*Paper: Consumption by kinds, and apparent per capita consumption, specified years, beginning 1810* [1]

Year	Newsprint	Book	Boards	Wrapping	Fine	All other	All kinds	Apparent per capita
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Pounds*
1810							[2] 3	1
1819							[2] 12	2
1839							[2] 38	4
1849							[2] 78	7
1859							[2] 127	8
1869							391	20
1879							457	18
1889							1,121	36
1899	569	314	394	535	113	233	2,158	57
1904	883	495	521	644	142	365	3,050	74
1909	1,159	689	883	763	193	537	4,224	93
1914	1,576	926	1,292	892	244	566	5,496	112
1917	1,824	846	1,805	814	276	691	6,256	122
1918	1,760	800	1,927	859	348	693	6,387	123
1919	1,892	838	1,940	825	306	692	6,493	124
1920	2,196	1,060	2,301	1,003	371	930	7,861	148
1921	2,002	707	1,641	770	230	704	6,054	112
1922	2,451	968	2,154	1,059	356	1,015	8,003	146
1923	2,814	1,235	2,802	1,177	374	938	9,340	167
1925 [3]	3,073	1,365	3,290	1,287	472	1,013	10,590	184
1926	3,517	1,408	3,837	1,435	495	1,315	11,807	203
1927	3,492	1,265	3,737	1,515	502	1,404	11,915	202
1928	3,561	1,321	4,009	1,457	538	1,562	12,448	208
1929	3,813	1,471	4,398	1,586	593	1,490	13,351	220
1930	3,496	1,370	4,014	1,556	564	1,251	12,251	199
1931	3,261	1,195	3,795	1,383	480	1,116	11,230	181
1932	2,831	935	3,297	1,233	418	885	9,599	154
1933	2,711	1,069	4,055	1,425	472	1,130	10,862	173

[1] Imports added to United States production and domestic exports deducted.
[2] Domestic production only, value of exports and imports being approximately equal.
[3] Data for 1924 not available.

Forest Service; a computed table based on Bureau of the Census and Forest Service bulletins.

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TABLE 509.—*Stock grazed on the national forests, and receipts, 1905–34*

Fiscal year	Cattle	Horses	Hogs	Sheep	Goats	Receipts for grazing by fiscal years
	Number	*Number*	*Number*	*Number*	*Number*	*Dollars*
1905	632,793	59,331	----------	1,709,987	----------	[1]
1906	1,015,148	[2]	----------	5,762,200	[2]	513,000
1907	1,200,158	[2]	----------	6,657,083	[3]	857,005
1908	1,304,142	76,003	2,076	6,960,919	126,192	947,365
1909	1,491,385	90,019	4,501	7,679,698	139,896	[4] 1,022,516
1910	1,409,873	84,552	3,145	7,558,650	90,300	969,971
1911	1,351,922	91,516	4,500	7,371,747	77,668	927,967
1912	1,403,025	95,343	4,330	7,467,890	83,849	[4] 961,489
1913	1,455,922	97,919	3,277	7,790,953	76,898	999,369
1914	1,517,045	99,835	3,381	7,560,186	58,616	1,002,348
1915	1,627,321	96,933	2,792	7,232,276	51,409	1,130,495
1916	1,758,764	98,903	2,968	7,843,205	43,268	1,210,215
1917	1,953,198	98,880	2,306	7,586,034	49,939	1,549,795
1918	2,137,854	102,156	3,371	8,454,240	57,968	1,725,822
1919	2,135,527	93,251	5,154	7,935,174	60,789	2,609,170
1920	2,033,800	83,015	4,066	7,271,136	53,685	2,486,040
1920	88,599	6,444	1,010	553,263	3,346	----------
1921 [5]	1,999,680	78,115	2,453	6,936,377	43,574	2,132,075
1922 [6]	1,882,491	67,856	2,149	6,497,912	36,153	1,315,975
1923 [6]	1,804,274	64,104	1,347	6,377,759	31,379	2,341,486
1924 [6]	1,664,087	58,184	1,560	3,301,308	29,068	1,915,561
1925 [6]	1,538,942	57,904	846	6,162,263	19,795	1,725,377
1926 [6]	1,456,858	57,396	1,085	6,212,657	15,666	1,421,589
1927 [6]	1,403,192	55,629	997	6,376,838	18,046	1,530,952
1928 [6]	1,335,903	51,956	1,206	6,497,081	17,070	1,713,730
1929 [6]	1,322,465	48,171	853	6,650,719	15,487	1,740,290
1930 [6]	1,321,431	42,357	540	6,799,236	13,496	1,942,914
1931 [6]	1,338,373	37,335	431	6,593,583	14,645	1,960,642
1932 [6]	1,361,160	35,105	528	6,308,500	12,438	829,960
1933 [6]	1,366,538	31,797	533	6,150,921	11,045	1,498,209
1934 [6]	----------	----------	----------	----------	----------	1,358,688

[1] No data available.
[2] Included with cattle.
[3] Included with sheep.
[4] Subject to revision.
[5] Last 6 months only.
[6] Calendar year.

Forest Service.

TABLE 510.—*Number of stock grazed in national forests, by States, calendar year 1933, and total grazing receipts, fiscal year 1934*

State	Cattle	Horses	Hogs	Sheep	Goats	Receipts from grazing [1]
	Number	*Number*	*Number*	*Number*	*Number*	*Dollars*
Arizona	191,089	1,339	115	291,072	----------	101,067
Arkansas	865	----------	51	5	----------	167
California	138,717	3,883	125	367,723	662	106,906
Colorado	280,096	2,160	----------	945,954	50	300,755
Florida	764	----------	31	----------	----------	746
Idaho	125,423	4,569	----------	1,313,633	----------	178,143
Montana	126,140	6,151	----------	585,598	100	109,880
Nebraska	11,667	407	----------	----------	----------	4,763
Nevada	51,878	1,823	----------	307,820	----------	67,600
New Hampshire	58	2	----------	----------	----------	42
New Mexico	91,747	1,704	60	191,617	10,225	70,604
North Carolina	717	8	129	70	8	339
Oklahoma	2,143	----------	----------	----------	----------	2,093
Oregon	83,159	1,340	----------	612,336	----------	100,349
Pennsylvania	53	----------	----------	----------	----------	2
South Dakota	29,704	1,067	----------	30,661	----------	15,473
Tennessee	515	12	----------	15	----------	99
Utah	108,831	3,251	22	738,776	----------	165,745
Virginia	958	3	----------	286	----------	302
Washington	13,972	309	----------	144,974	----------	26,317
West Virginia	455	11	----------	1,425	----------	521
Wyoming	107,587	3,758	----------	618,956	----------	106,280
Total	1,366,538	31,797	533	6,150,921	11,045	[2] 1,358,688

[1] Includes grazing trespass.
[2] Includes Georgia $319, Maine $3, South Carolina $87, and Wisconsin $86.

Forest Service.

TABLE 511.—*Free-use timber, cut from national forests, by States, 1931–34*

State	1931 [1]		1932 [1]		1933 [2]		1934 [2]	
	Quantity	Estimated users	Quantity	Estimated users	Quantity	Estimated users	Quantity	Estimated users
	Mft. b. m.	*Number*	*Mft. b. m.*	*Number*	*Mft. b. m.*	*Number*	*Mft. b. m.*	*Number*
Alaska	74	7	58	4	1,081	304	2,945	675
Alabama					5	7	180	120
Arizona	10,879	7,495	13,021	9,165	14,623	6,882	14,568	8,667
Arkansas	331	95	349	148	337	118	1,227	486
California	5,674	8,548	9,809	17,616	11,760	21,518	15,696	14,601
Colorado	10,894	4,138	15,428	4,879	14,083	5,428	14,166	5,795
Florida	45	55	204	93	129	87	121	124
Idaho	30,975	14,743	59,572	21,356	54,180	19,831	51,300	16,654
Louisiana							500	500
Michigan	981	254	3,173	533	3,078	552	2,750	1,522
Minnesota	219	110	704	230	1,290	307	3,264	295
Montana	17,375	9,281	28,696	17,224	31,372	17,820	31,109	15,275
Nebraska	53	32	42	24	130	45	86	13
Nevada	1,757	470	1,801	577	1,923	613	1,846	799
New Mexico	22,503	14,473	27,962	16,565	29,255	20,806	23,485	17,802
North Carolina	1,554	675	2,123	820	2,072	657	3,114	1,395
Oklahoma	118	114	128	178	98	116		
Oregon	22,677	2,949	34,930	4,735	33,431	4,331	24,284	3,268
Pennsylvania	2,000	500	1,337	1,938	1,947	1,025	2,780	1,832
South Dakota	3,565	1,352	5,200	1,709	3,882	1,338	8,191	3,453
Tennessee	1,706	895	2,907	1,509	3,589	3,694	3,533	1,369
Utah	22,620	12,560	35,332	20,090	39,346	22,681	23,075	13,512
Virginia	436	306	872	1,155	1,189	399	221	133
Washington	2,741	721	15,366	2,623	3,389	1,002	7,121	1,495
West Virginia	81	33	347	80	229	66	20	60
Wisconsin	61	12	313	46	459	71	95	31
Wyoming	8,361	1,800	10,570	2,175	12,935	3,933	12,566	3,945
Total	167,680	81,618	270,244	125,472	265,812	133,631	248,243	113,821

[1] Calendar year. [2] Fiscal year.

Forest Service.

TABLE 512.—*Fires on national forests, 1924–33*

Year	Fires	Area burned [1]	Damage		Cost of fighting fire [3]
			Timber destroyed	Value, all items [2]	
	Number	*Thousand acres*	*Mft. b. m.*	*Dollars*	*Dollars*
1924	8,247	826	677,925	1,892,605	1,715,706
1925	8,263	349	342,554	968,892	947,773
1926	7,095	956	1,329,573	5,716,660	2,298,358
1927	5,693	224	84,396	375,338	710,212
1928	6,921	499	234,460	1,395,018	1,309,875
1929	7,449	978	1,427,551	5,831,838	3,400,403
1930	8,388	206	65,951	493,229	1,303,099
1931	8,466	640	989,631	4,409,309	4,271,294
1932	7,037	422	57,805	685,943	1,107,931
1933	6,315	160	46,397	387,081	[4] 1,009,611

[1] Government and private land inside national-forest boundaries.
[2] Includes the reported value of timber destroyed, forage, and buildings.
[3] Includes the cost of emergency patrol, tools, and supplies.
[4] Includes $593,946 from E. C. W. funds.

Forest Service.

TABLE 513.—*Emergency Conservation Work: Forest-fire prevention work completed Apr. 5, 1933–Mar. 31, 1934*

State	Camps	Fire breaks	Reduction of fire hazards	Road and trailside clearing	Lookout towers	Fighting forest fires	Fire presuppression	Fire prevention
	Number [1]	*Miles*	*Acres*	*Miles*	*Number*	*Man-days*	*Man-days*	*Man-days*
Alabama	14	3,113	7,473	28	5	21,578	3,860	549
Arizona	18	2	13,253	156	6	1,131	400	
Arkansas	30	1	5,720	567	13	20,006	21,533	787
California	111	941	35,903	2,276	12	114,895	76,737	9,383
Colorado	11	4	698	252		1,319	837	67
Connecticut	16	37	178	106	4	495		875
Florida	22	3,188	519	148	18	16,839	14,555	1,318
Georgia	30	2,409	34,693	438	28	21,647	9,613	324
Idaho	51	48	2,683	427	15	28,750	1,166	
Illinois	16	1	33	11		1,583		
Indiana	19	23	2,506	154	7	3,770	108	8
Iowa	11	11	523	9				
Kansas	9			3				
Kentucky	19	62	22	46	1	3,438	286	15
Louisiana	24	1,276	29,515	384	8	15,642	13,227	42
Maine	12	12	313	144		739	1,086	20
Maryland	10	217	640	164	3	379	5,661	56
Massachusetts	23	78	2,542	190	1	170	628	2,017
Michigan	52	262	35,367	1,044	8	54,044	3,114	452
Minnesota	48	175	23,037	779	11	55,253	1,458	6,687
Mississippi	20	422	97	5	5	11,131	635	83
Missouri	12	46	1,600	179	3	1,011	293	
Montana	10		238	30	1	6,766	1,278	350
Nebraska	5	9	1,834	16		28	350	1,502
Nevada	3	1	3	35		236		
New Hampshire	12	28	3,937	53	1	1,032	19	19
New Jersey	11	134	1,853	22	1	126		
New Mexico	12			120	2	656	151	34
New York	28	76	397	109	2	2,592		
North Carolina	24	177	3,126	76	6	10,379	2,512	347
Ohio	24	15	6	33	5	700		
Oklahoma	14	2	4,605	128	4	7,578	3,867	194
Oregon	36	113	10,082	502	39	51,249	6,194	671
Pennsylvania	93	336	4,816	1,053	6	3,189	115	200
Rhode Island	3	44				5		
South Carolina	17	2,259	563	157	22	35,257	18,261	1,670
South Dakota	15	20	3,031	551		3,752	2,326	112
Tennessee	25	27	529	23	14	13,471	595	113
Texas	27	62		47	7	11,247	16,592	
Utah	14	9	307	100		1,531	121	
Vermont	12	13	284	72	1	264		605
Virginia	31	758	57,851	131	32	7,133	480	910
Washington	34	213	15,420	685	14	20,058	6,488	1,233
West Virginia	15	566	128	115	5	4,671	201	428
Wisconsin	41	125	180,232	1,223	24	79,235	6,772	229
Wyoming	72	2	30	214		1,979		100
United States	1,156	17,317	486,587	13,005	334	636,954	221,519	31,490

[1] Average number of camps.

Forest Service.

This table reports only the forest-fire prevention and suppression work of the C. C. C. camps under the supervision of the Forest Service of the Department of Agriculture. For a similar report of the entire number of camps, see the second report of the Director of Emergency Conservation Work, 1934.

TABLE 514.—*Emergency Conservation Work: Flood-control work completed Apr. 5, 1933–Mar. 31, 1934*

State	Surveys		Clearing			Dams							Channel enlargement excavation		Reconstruction of existing dams						
	Lines and grades	Topographic	Dam site	River bank	Channel	Earth fill	Site stripping	Excavation		Concrete	Rock fill	Steel	Earth	Rock	Excavation		Concrete removal	New concrete	Steel	Levees	Cribbing
								Earth	Rock						Rock	Earth					
	Lin. ft.	*Sq. yd.*	*Sq. yd.*	*Sq. yd.*	*Lin. yd.*	*Cu. yd.*	*Cu. yd.*	*Cu. yd.*	*Cu. yd.*	*Cu. yd.*	*Cu. yd.*	*Lb.*	*Cu. yd.*	*Cu. yd.*	*Cu. yd.*	*Cu. yd.*	*Cu*	*Cu. yd.*		*Lb.*	*Cu. yd.*	*Lin. ft.*
Alabama				23,333																	
Arizona				25	287					2	3,426		25							6,213	
California	227,825	2,445,097	79,900	134,560	35,395	1,085	6,530	4,080	2,400	958	7,289	24,347	28,677	59,066	30,012					159,837	82,441
Colorado	23,700		4,937			65	230	3,113	573	236	295	4,531	1,430	40						2,982	1,330
Florida	1,800				720																
Idaho	156,040			100									10							220	
Indiana				38,607	340	35															
Iowa	169,860	440,200	4,500	19,014	1,500	45,626	10,814		1,375	473		5,045	34,871	497						640	1,110
Kansas	108,800	70,000	136,170		20,803	110,025	34,450	39,320	6,552		7,575				173	13,000	154	880	64,000	1,828	
Kentucky	30,000																				
Louisiana	266,600		1,853,844					1,661					850								
Maine													1,560							30	
Maryland															4	800	3	205		814	
Massachusetts	17,004		354,740			827		1,000		556	65									6,015	
Michigan													100								
Minnesota	4,739,637		33,368		380	45,728		18,982		826	17,587	8,406		692						145	
Missouri	40,940					3,863			468				300								
Nebraska	443,768	752,212	27,115	4,174	6,065	91,420	43	25,594	148	561	349	11,368	7,526	8		300				2,505	14,400
Nevada	274,688	30,887,200	92,384	30,000	12,699	86,703	1,000	1,000		1,830		300	22,009							50,000	94,135
New Hampshire						150	50	6,163	100	52	125				25					1,668	
New Jersey	150,000	10,000																			
New Mexico																				300	255
New York	9,670	4,000	1,530		600	14,825	5,417	8,420	1,304	408	29		1,460	75						531	1,317
North Carolina	1,000				250						18		600								
North Dakota						210,527							5,560							18,217	
Oklahoma	167,920		681,000		60	11,987	220	6,745	3,663	3,342	7,358	15,084									
Oregon					370															2,800	
Pennsylvania		39,611		108,480	2,890	5,033		1,832			1,025		625	300						1,988	550
South Dakota	151,960					74,746				117	3,819	3,000	17,670								
Tennessee				24,000																	
Texas	10,000	3,800,000			100	16,559		3,056	335	4,686	595	1,880									
Utah	182,584	10,000,239	26,035	128,645	4,330	86,633	4,300	42,245	9,019	4,071	37,623	1,400	104,571	10,700	5,500					64,867	10,627
Vermont							110	875													
Virginia					60																
Washington	105,970				2,000			2,500	2,500	3	356		1,000							800	2,490
West Virginia	109,880	6,000																			
Wisconsin	3,551,185	58,000	132,800	137,950		233,091				4,648	1,232	464,800	44,349							940	
Wyoming				500				125					540								
United States	10,940,651	48,512,559	3,428,323	649,388	88,849	1,038,928	63,164	166,711	28,437	22,769	88,766	540,161	273,733	71,378	35,714	14,100	157	1,085	64,000	323,340	208,655

Forest Service.

This table reports only the flood control work of the C. C. C. camps under the supervision of the Forest Service of the Department of Agriculture. For a similar report of the entire number of camps, see the second report of the Director of Emergency Conservation Work, 1934.

TABLE 515.—*Emergency Conservation Work: Erosion-control work completed Apr. 5, 1933–Mar. 31, 1934*

State	Erosion camps	Dams	Land benefited	Bank protection	Ditches
	Number [1]	*Number*	*Acres*	*Sq. yd.*	*Linear yd.*
Alabama	2	3,392	21,305	178,912	
Arizona		46,566	29,156	46,046	
California		405	6,940	404,364	7,190
Colorado		40,980	27,764	27,410	
Georgia			120	500	
Idaho		2			
Illinois	9	17,462	50,371	2,223,205	1,222
Indiana	9	43,462	24,245	98,008,434	11,284
Iowa	11	23,144	178,095	8,598	
Kansas	5	589	979		
Kentucky	9	5,643	7,396	1,083,587	13,575
Louisiana	4		5	2,000	
Maryland		8			
Michigan			93	20,752	1,432
Minnesota	4	1,954	36,956	7,869	
Mississippi	8	105,497	45,381	4,950,412	
Missouri	4	1,222	24,808	21,024	
Montana					6,266
Nebraska	3	660	16,514	13,235	
Nevada	2		16		
New Hampshire			75		
New Mexico	1	41,399	38,531	2,600	
New York				4,000	
North Carolina		4,974	4,316	34,204	
Ohio	13	10,281	12,611	886,901	6,559
Oklahoma	5	3,918	33,490	90,111	
Oregon		467	63		
Pennsylvania			13		
South Carolina		1,651	360		
South Dakota	1	201	57	500	
Tennessee	5	49,227	39,526	563,003	
Texas	10	3,435	28,810	1,303	
Utah	5	205	5,041		
Washington			5		
Wisconsin	4		5,729		
Wyoming		321	1,361		
United States	114	407,065	640,132	109,298,970	47,528

[1] Average number of camps. Many other camps under Forest Service supervision did considerable erosion-control work.

Forest Service.

This table reports only the erosion-control work of the C. C. C. camps under the supervision of the Forest Service of the Department of Agriculture. For a similar report of the entire number of camps, see the second report of the Director of Emergency Conservation Work, 1934.

TABLE 516.—*Turpentine and rosin: Industrial consumption, United States, average 1927–31, annual 1932 and 1933*

Industry	Turpentine			Rosin		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Gallons	*Gallons*	*Gallons*	*500-lb. barrels*	*500-lb. barrels*	*500-lb. barrels*
Automobiles and wagons	133,953	33,245	42,628	1,831	773	1,505
Chemicals and pharmaceuticals	50,272	32,495	37,394	5,337	3,028	3,889
Foundries and foundry supplies	16,054	5,750	10,284	17,881	3,663	1,670
Linoleum	2,220	2,539	110	38,361	16,003	19,530
Matches				2,922	2,749	3,160
Miscellaneous	48,388	39,960	41,511	3,477	770	3,045
Oils and greases	52,151	29,324	10,067	47,808	21,899	30,634
Paper and paper size	3,632	1,666	1,446	332,188	261,000	320,940
Paint and varnish	4,234,556	2,280,214	2,568,241	221,249	121,240	168,640
Printing ink	13,039	22,635	19,465	14,581	10,225	11,677
Sealing wax, pitch, insulations, and plastics	63,070	36,262	31,266	30,859	11,559	11,519
Shipyards, car shops	46,361	34,188	25,566	829	108	39
Shoe polish	562,318	549,282	575,793	691	290	850
Soap	4,726	8,733	5,634	214,085	261,350	264,173
Total	5,230,740	3,076,293	3,369,405	932,099	714,657	841,271

Bureau of Chemistry and Soils.

TABLE 517.—*Turpentine and rosin: Stocks on hand and en route in the United States as of Mar. 31, average 1928–32, annual 1933 and 1934*

Location	Turpentine			Rosin		
	Average 1928–32	1933	1934	Average 1928–32	1933	1934
	Gallons	*Gallons*	*Gallons*	*500-lb. barrels*	*500-lb. barrels*	*500-lb. barrels*
Gum turpentine stills	[1] 548,781	[2]	[3] 799,406	[1] 105,920	[2]	[3] 201,651
Steam distillation plants [4]	475,827	659,920	983,887	106,945	101,811	88,200
Destructive distillation plants	[5] 27,427	30,166	62,743			
Sulphate wood turpentine plants	[6] 11,103	40,302	76,907			
Southern primary ports and concentration points	2,902,494	3,810,845	2,531,712	252,500	272,830	157,201
Eastern distributing points	359,060	366,532	391,403	8,935	15,275	6,924
Central distributing points	754,962	648,341	764,129	12,990	12,348	8,950
Western distributing points	110,980	117,217	130,694	2,508	1,260	990
Plants of industrial consumers	1,175,686	606,485	927,604	243,420	303,866	425,626
Total	6,366,320	[7] 6,279,808	6,668,485	733,218	[7] 707,390	889,542

[1] For 1928, 1930, and 1932; data not available for other years.
[2] Data not available.
[3] Stocks as of Dec. 1, 1933; reported by Bureau of the Census.
[4] Compiled from Hercules Powder Co. reports.
[5] Data not available for 1928; average for 4-year period.
[6] For 1931 and 1932 only; data not available for other years.
[7] Exclusive of quantities at gum turpentine stills.

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TABLE 518.—*Turpentine and rosin: Exports and imports, United States, average 1927–28 to 1931–32, annual 1932–33 and 1933–34*

Item	Turpentine (years beginning April)			Rosin (years beginning April)		
	Average 1927–28 to 1931–32	1932–33	1933–34	Average 1927–28 to 1931–32	1932–33	1933–34
	Gallons	*Gallons*	*Gallons*	*500-lb. barrels*	*500-lb. barrels*	*500-lb. barrels*
Exports	15,319,234	11,252,781	15,010,054	1,288,426	1,089,294	1,298,725
Imports	343,509	453,982	500,159	2,652	1	3,617

Bureau of Chemistry and Soils; compiled from Department of Commerce reports.

TABLE 519.—*Hunters' licenses issued by States, with money returns, for the seasons 1932 and 1933* [1]

State	Licenses issued						Money returns	
	Resident		Nonresident and alien		Total			
	1932	1933	1932	1933	1932	1933	1932	1933
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Dollars*	*Dollars*
Alabama	72,271	54,042	153	127	72,424	54,159	95,353.25	68,738.65
Alaska	(2)	(2)	176	89	176	89	10,620.00	5,130.00
Arizona [3]	[3] 18,000	[3] 20,067	[3] 150	[4] 258	18,150	20,325	48,750.00	55,612.00
Arkansas	51,939	41,512	2,156	725	54,095	42,237	85,541.30	53,525.80
California [3]	[3] 200,000	153,375	[3] 600	656	200,600	154,031	400,000.00	453,159.15
Colorado	[4] 94,712	[4] 71,208	194	170	94,906	74,378	215,133.00	173,692.00
Connecticut	[4] 26,183	[4] 27,769	[4] 451	[4] 447	26,634	28,216	96,740.00	100,718.00
Delaware	[4] 1,208	[4] 1,128	85	71	1,293	1,199	2,494.72	2,433.00
Florida	43,745	38,400	352	323	44,097	38,723	104,438.00	89,977.50
Georgia	30,418	[5] 39,227	218	-------	30,636	39,227	50,231.70	86,000.00
Idaho	[4] 65,368	[4] 63,938	313	[4] 387	65,681	64,325	128,664.20	126,412.70
Illinois	302,458	280,525	843	708	303,301	281,235	239,488.50	221,013.75
Indiana	[4] 281,621	[4] 340,386	258	[4] 155	281,879	340,541	248,447.00	342,788.50
Iowa	[4] 242,901	[4] 225,027	196	69	243,097	225,096	242,239.70	226,062.00
Kansas	107,330	[4] 78,089	903	131	108,233	78,220	155,629.00	90,152.00
Kentucky	70,610	71,154	128	95	70,738	71,249	61,298.50	61,330.90
Louisiana	75,811	58,971	89	396	75,900	59,367	78,061.00	61,861.00
Maine	[4] 108,205	[4] 99,519	4,049	3,561	112,254	103,080	113,240.00	102,814.93
Maryland	61,155	62,078	947	1,077	62,102	63,155	103,868.00	105,710.30
Massachusetts	[4] 107,166	[6] 73,803	1,721	424	108,887	[6] 74,227	269,868.55	159,798.40
Michigan	258,459	396,383	578	2,707	259,037	399,090	555,170.00	484,163.76
Minnesota	216,985	253,161	159	136	217,144	253,297	238,249.40	264,710.30
Mississippi	-------	80,069	-------	236	-------	80,305	-------	110,445.00
Missouri	[4] 170,275	[4] 160,170	[4] 439	[4] 459	170,714	160,629	244,892.00	196,550.17
Montana	[4] 86,937	[4] 82,763	129	99	87,066	82,862	152,571.00	143,092.00
Nebraska	[4] 147,544	[4] 138,926	[4] 382	[4] 453	147,926	139,379	151,364.00	143,456.00
Nevada	5,987	5,220	56	60	6,043	5,280	15,527.50	13,665.00
New Hampshire	[4] 51,387	[4] 48,395	[4] 1,830	[4] 4,737	53,217	53,132	122,537.30	120,036.08
New Jersey	[4] 118,698	[4] 107,696	[4] 1,118	[4] 877	119,816	108,573	330,546.60	227,815.20
New Mexico [3]	[3 4] 19,000	[4] 14,873	[3 4] 1,700	[4] 824	20,700	15,697	96,000.00	72,456.91
New York	[4] 527,805	[4] 520,232	3,347	[4] 3,170	531,152	523,402	1,007,484.19	982,051.08
North Carolina	78,211	65,966	672	656	78,883	66,622	128,913.00	110,281.37
North Dakota	28,654	[4] 37,335	67	57	28,721	37,392	40,177.61	64,284.34
Ohio	389,190	379,768	40	29	389,230	379,797	389,790.00	380,203.00
Oklahoma	92,086	91,858	722	435	92,808	92,293	94,758.00	94,219.50
Oregon	[4] 50,868	[4] 50,563	342	257	51,210	50,820	178,543.50	173,579.00
Pennsylvania	537,451	524,337	5,251	4,966	542,702	529,303	1,098,222.80	1,069,236.15
Rhode Island	8,313	9,030	154	166	8,467	9,166	18,202.00	19,661.00
South Carolina	68,581	57,765	1,190	1,335	69,771	59,100	113,257.00	99,730.00
South Dakota	70,025	69,224	764	714	70,789	69,938	97,845.00	93,986.00
Tennessee	56,566	[4] 47,935	98	67	56,664	48,002	89,985.11	82,347.58
Texas	89,841	85,000	321	272	90,162	85,272	173,268.80	163,266.00
Utah	[4] 39,127	[4] 33,177	[4] 328	408	39,455	33,585	85,615.50	83,123.50
Vermont	[4 7] 45,344	[4] 44,463	[4] 1,337	1,102	[7] 46,681	45,565	64,856.90	61,816.05
Virginia	[4] 121,156	[4] 125,024	1,250	1,088	122,406	126,112	200,905.00	203,992.50
Washington	[4] 167,086	[4] 126,668	100	928	167,186	127,596	280,310.00	302,054.50
West Virginia	129,836	[4] 144,757	[4] 138	[4] 322	129,974	145,074	150,287.97	169,357.00
Wisconsin	183,667	184,142	205	173	183,872	184,315	192,216.65	170,053.00
Wyoming	[4] 19,508	[4] 16,943	[4] 247	[4] 345	19,755	17,288	61,095.85	68,265.00
Total	5,739,688	5,702,061	36,946	36,947	5,776,634	5,741,965	9,122,699.10	8,754,827.57

[1] Figures are for the fiscal year or season ended during the year named.
[2] None required.
[3] Estimated for 1932.
[4] Combined hunting and fishing license, or State and county license, or large- and small-game license.
[5] Includes both resident and nonresident licenses, no separate record having been kept.
[6] Includes 5,397 free licenses.
[7] Correction of error in 1932 figures.

Biological Survey.

TABLE 520.—*Mileage of roads in State highway systems, including Federal-aid system, at end of 1933, and total mileage 1921, 1923–32, as reported by State highway departments* [1]

State and year	Total system mileage	Earth non-surfaced		Surfaced roads by types							
		Unimproved	Improved to grade	Total surfaced mileage	Sand-clay, top-soil	Gravel, chert, etc.	Water-bound macadam (treated and untreated)	Bituminous macadam	Bituminous concrete	Portland cement concrete	Brick and block
	Miles	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*
Alabama	5,552	765	677	4,110	1,085	1,841	22	166	175	821	
Arizona	2,895	466	241	2,188		1,951		25	69	143	
Arkansas	9,020	707	818	7,495		5,335		419	622	1,119	
California	12,584	3,553	501	8,530		3,523		1,205	1,318	2,484	
Colorado	9,421	3,951	379	5,091	66	4,532			15	478	
Connecticut	2,352		50	2,302		282	950	331	155	582	2
Delaware	1,142			1,142	48	224		45	27	792	6
Florida	8,367	2,965	267	5,135	868	25	2,779	155	432	560	316
Georgia	8,680	3,458	463	4,759	1,336	761	678	492	276	1,206	10
Idaho	4,806	1,003	461	3,342	40	2,988	75	29	154	56	
Illinois	10,099	408	107	9,584		11	1	5	7	9,310	250
Indiana	8,439		137	8,302		2,590	1,321	576	60	3,651	104
Iowa	7,834	358	52	7,424		3,222				4,174	28
Kansas	8,982	3,095	201	5,686	2,296	1,974		183	3	1,068	162
Kentucky	7,319	651	682	5,986		3,462	1,032	200	411	876	5
Louisiana	17,628	5,455	501	11,672		9,474		12	229	1,951	6
Maine	2,087	66		2,021		1,539		267		213	2
Maryland	3,757			3,757		645	1,116	161	240	1,594	1
Massachusetts	1,795			1,795		51	145	963	256	377	3
Michigan	8,668	399	122	8,147	88	3,541	454	86	423	3,544	11
Minnesota	6,766	49	41	6,676	72	4,092			80	2,424	8
Mississippi	6,094	158	669	5,267	1	4,584	10	52	46	561	13
Missouri	12,226	924	554	10,748		6,995		258	53	3,423	19
Montana	8,093	4,442	187	3,464	86	3,333		16	3	26	
Nebraska	9,770	2,856	190	6,724		5,980			17	676	51
Nevada	4,007	1,728	58	2,221		2,152		5	35	29	
New Hampshire	2,948	5	32	2,911		2,365	94	168	43	241	
New Jersey	1,872	115	25	1,732		65	53	7	254	1,301	52
New Mexico	10,370	5,380	1,838	3,152		3,036			14	102	
New York	13,930	1,654	27	12,249		146	973	2,897	1,693	6,350	190
North Carolina	10,148	313	636	9,199	1,582	3,300	476	108	1,064	2,658	11
North Dakota	7,604	1,161	836	5,607		5,576			1	30	
Ohio	11,845	57		11,788		4,223	1,061	1,610	714	2,721	1,459
Oklahoma	7,420	1,306	714	5,400		3,367			275	1,719	39
Oregon	4,751	275	339	4,137		2,530		676	683	248	
Pennsylvania [2]	34,009	11,790		22,219		10,362	3,619	622	746	6,329	541
Rhode Island	1,086	223	185	678		76	92	242	116	152	
South Carolina	5,954	123	64	5,767	2,640	693	43	4	445	1,942	
South Dakota	5,961	358	662	4,941	21	4,732			5	183	
Tennessee	7,212	282	457	6,473		3,117	897	525	607	1,308	19
Texas	19,737	3,528	2,392	13,817	10	2,415	90	5,695	1,771	3,784	52
Utah	4,622	601	1,250	2,771		2,375		6	89	301	
Vermont	1,013			1,013		439	5	298		271	
Virginia	8,974	997	304	7,673	837	3,408	1,869	745	76	738	
Washington	3,805	180	55	3,570		2,302		140	77	1,036	15
West Virginia [2]	33,546	23,304	2,819	7,423		3,396	1,718	759	165	1,296	89
Wisconsin	10,104		604	9,500	47	4,563	472	186	54	4,177	1
Wyoming	3,398	460	355	2,583		2,548			27	8	
Total, 1933	398,692	89,569	20,952	288,171	11,123	140,141	20,045	20,339	14,025	79,033	3,465
Total:											
1932	358,210	72,743	19,407	266,060	13,158	123,870	19,297	20,009	12,179	73,984	3,563
1931	328,942	61,319	24,923	242,700	14,402	112,800	19,157	15,356	10,312	67,348	3,325
1930	324,498	69,910	27,816	226,772	15,153	107,277	20,229	14,590	8,071	58,208	3,244
1929	314,163	77,259	28,899	208,005	15,442	98,947	18,891	14,054	7,234	50,169	3,268
1928	306,442	81,549	31,755	193,138	13,499	93,124	18,142	15,200	6,890	42,957	3,326
1927	293,353	86,817	29,970	176,566	12,581	86,095	17,752	13,496	6,398	36,915	3,329
1926	287,928	96,413	28,456	163,059	11,396	79,286	18,428	12,927	5,705	31,936	3,381
1925	274,911	103,271	26,786	144,854	11,025	68,771	16,709	12,105	5,414	27,645	3,185
1924	261,216	94,651	34,456	132,109	10,446	63,158	17,033	10,346	5,211	22,825	3,090
1923	251,611	103,843	36,368	111,400	8,875	52,917	15,422	8,847	4,558	17,916	2,865
1921	209,242	102,963	21,421	[3] 84,858	8,622	36,458	16,978	6,749	2,840	10,114	2,089

[1] Includes municipal streets connecting State highways in a majority of States.
[2] Includes secondary State system.
[3] Includes 1,008 miles of miscellaneous surfacing not allocated by types.

Bureau of Public Roads.

TABLE 521.—*Total State highway income and funds available, 1933, as reported by State authorities*

State	Total funds available	Balances at first of year	Total income for State highways	Current revenue from State sources				Contributions from other than State sources		Loans
				State taxes and appropriations	Motor-vehicle fees	Gasoline-tax receipts	Miscellaneous revenue	Federal payments and advances	Transfers from local government units	State highway bonds and notes sold
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Alabama	10,983	218	10,765	-------	2,150	3,757	247	4,610	1	-------
Arizona	5,770	61	5,709	473	647	1,649	52	2,888	-------	-------
Arkansas	7,913	−2,825	10,738	-------	1,660	4,821	258	3,999	-------	-------
California	48,568	9,717	38,851	4,348	3,363	23,850	-------	7,109	181	-------
Colorado	9,971	1,356	8,615	387	215	3,664	89	4,260	-------	-------
Connecticut	15,657	3,511	12,146	-------	6,600	4,500	177	569	300	-------
Delaware	4,480	1,029	3,451	1,000	997	1,035	17	402	-------	-------
Florida	10,158	533	9,625	-------	2	6,063	23	3,392	145	-------
Georgia	16,011	1,731	14,280	-------	1,121	7,790	23	5,065	281	-------
Idaho	5,633	54	5,579	331	135	2,247	17	2,774	75	-------
Illinois	57,699	15,116	42,583	24	15,273	19,742	108	7,271	165	-------
Indiana [1]	17,106	6,595	10,511	-------	2,430	6,610	198	1,223	50	-------
Iowa	22,922	3,084	19,838	-------	9,909	5,290	1	3,828	-------	810
Kansas	15,092	2,762	12,330	-------	1,357	5,693	13	5,122	145	-------
Kentucky	18,027	718	17,309	732	2,623	8,374	869	4,548	163	-------
Louisiana	27,769	2,885	24,884	-------	4,163	6,434	710	3,572	5	10,000
Maine	13,296	1,246	12,050	-------	2,755	4,010	231	2,995	1,103	956
Maryland	15,411	2,275	13,136	2,702	2,385	6,210	266	1,425	148	-------
Massachusetts	23,728	6,384	17,344	-------	4,216	8,877	369	3,375	507	-------
Michigan	29,583	277	29,306	-------	8,055	14,691	505	5,557	498	-------
Minnesota	19,533	1,670	17,863	1,556	5,649	6,559	230	3,869	-------	-------
Mississippi [2]	7,667	197	7,470	-------	107	2,629	17	4,519	198	-------
Missouri	37,393	8,114	29,279	9	8,889	9,028	677	5,553	37	5,086
Montana	7,645	39	7,606	-------	-------	2,578	24	4,979	25	-------
Nebraska	11,998	449	11,549	50	577	5,203	-------	5,701	18	-------
Nevada	3,790	−190	3,980	91	288	675	24	2,582	20	300
New Hampshire	8,438	763	7,675	109	2,011	2,650	164	586	255	1,900
New Jersey	39,442	16,457	22,985	6,026	9,765	4,216	74	2,748	-------	156
New Mexico	7,979	523	7,456	82	287	2,215	94	4,190	88	500
New York	73,887	44,002	29,885	6,527	4,876	3,599	6	7,847	324	6,706
North Carolina	23,293	611	22,682	-------	4,791	14,165	112	3,614	-------	-------
North Dakota	5,464	576	4,888	-------	110	1,210	145	3,114	209	100
Ohio	28,221	2,846	25,375	-------	3,911	15,191	244	5,896	133	-------
Oklahoma	13,229	1,157	12,072	-------	1,781	5,137	130	4,888	136	-------
Oregon	13,896	1,292	12,604	-------	2,249	5,954	21	2,724	195	1,461
Pennsylvania	86,565	17,627	68,938	-------	28,288	25,618	6,161	8,090	781	-------
Rhode Island	5,531	766	4,765	-------	2,150	1,770	43	802	-------	-------
South Carolina [3]	8,849	3,432	5,417	-------	1,127	2,524	428	1,311	27	-------
South Dakota	5,192	227	4,965	-------	421	1,861	13	2,670	-------	-------
Tennessee	22,296	8,309	13,987	267	2,207	6,793	702	4,018	-------	-------
Texas	44,677	11,468	33,209	-------	4,665	14,616	421	12,221	1,286	-------
Utah	6,424	276	6,148	348	834	2,120	30	2,816	-------	-------
Vermont	6,532	947	5,585	784	2,015	1,818	81	773	114	-------
Virginia	21,672	2,687	18,985	-------	4,928	10,921	344	2,742	50	-------
Washington	13,962	−184	14,146	-------	2,167	8,320	148	3,248	263	-------
West Virginia	16,785	3,177	13,608	1,800	3,807	5,070	-------	2,931	-------	-------
Wisconsin	34,190	6,759	27,431	-------	8,190	12,611	115	4,617	1,898	-------
Wyoming	4,797	136	4,661	67	671	1,056	215	2,611	41	-------
Total	955,124	190,860	764,264	27,713	176,817	321,414	14,836	185,644	9,865	27,975

[1] For 9-month period only.
[2] For 11-month period only.
[3] For 6-month period only.

Bureau of Public Roads.

TABLE 522.—*Total State highway and bridge disbursements, 1933, as reported by State authorities*

State	Grand total disbursements	Expenditures for State highway purposes						Other disbursements by State highway departments		
		Total expenditures	Capital investment in construction and right-of-way	Maintenance	Equipment and machinery	Miscellaneous expenses	Interest on bonds	Retirement of bonds	Transfers to counties	Other disbursements
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Alabama	10,711	9,411	5,202	1,477	244	398	2,090	1,120		180
Arizona	5,491	5,239	4,039	918	248	34				252
Arkansas	7,274	6,735	3,922	1,584	251		978			539
California	37,594	35,696	26,791	6,123	208		2,574	1,775	62	61
Colorado	9,696	7,970	6,342	1,315	71	37	205	1,726		
Connecticut	11,788	8,554	5,193	2,756	[1] −199	804			2,975	259
Delaware	4,138	2,988	2,235	273	35		445	1,012		138
Florida	9,126	9,083	7,145	1,731	207			18		25
Georgia	14,537	13,348	11,687	928	733					1,189
Idaho	5,193	4,714	3,607	923	86		98	393		86
Illinois	40,194	36,261	26,466	3,469	183	383	5,760	2,490	634	809
Indiana [2]	8,800	8,800	5,083	3,559	158					
Iowa	18,122	16,054	8,956	2,211	458	1	4,428	2,068		
Kansas	12,878	11,755	8,154	2,738	863				957	166
Kentucky	18,169	17,788	11,472	3,975	1,818	39	484	377		4
Louisiana	25,781	16,501	9,730	2,152	288	437	3,894	8,624		656
Maine	10,490	7,173	4,089	1,869	[1] −59	82	1,192	908	2,271	138
Maryland	13,788	10,497	7,165	2,307	78	143	804	1,897	1,343	51
Massachusetts	18,289	14,855	9,687	4,787	87	55	239	204	2,933	297
Michigan	24,272	22,273	16,380	4,793			1,100	1,834	8	157
Minnesota	17,079	14,592	9,465	3,035	144		1,948	877	1,610	
Mississippi [3]	7,591	7,551	5,636	1,752	163				15	25
Missouri	34,502	31,176	22,646	2,693	1,403		4,434	3,000		326
Montana	7,480	7,480	6,251	1,092	69		68			
Nebraska	11,124	11,112	8,819	2,205	88					12
Nevada	3,848	3,706	3,109	547		23	27	126		16
New Hampshire	7,471	5,907	2,882	2,695	68		262	575	950	39
New Jersey	28,378	18,437	12,022	2,260	[1] −98		4,253	3,300	6,641	
New Mexico	7,605	6,339	4,713	1,173		43	410	850		416
New York	42,206	40,910	25,042	9,204	1,337		5,327	1,200		96
North Carolina	20,475	11,337	4,734	2,138	[1] −342	112	4,695	3,750	4,761	627
North Dakota	5,074	4,809	3,704	1,061	26	18			60	205
Ohio	20,705	20,673	11,444	9,155	74					32
Oklahoma	14,524	14,524	12,479	1,830	160	55				
Oregon	12,660	8,797	5,363	2,109	[1] −123	155	1,293	1,975	1,600	288
Pennsylvania	66,676	59,021	35,761	13,664	4,683	1,060	3,853	6,052	21	1,582
Rhode Island	5,347	4,268	3,141	857	23	4	243		53	1,026
South Carolina [4]	8,125	4,380	1,560	641	9	147	2,023	1,891		1,854
South Dakota	4,509	4,408	3,152	1,235	6	15			86	15
Tennessee	15,357	14,907	8,131	1,449	1,252	73	4,002	13		437
Texas	40,650	39,515	28,703	10,555	257					1,135
Utah	6,084	5,608	4,142	1,157	[1] −40	24	325	412		64
Vermont	5,511	4,612	2,936	1,413			263	400	499	
Virginia	20,669	13,450	7,835	4,950		437	228		6,519	700
Washington	11,032	8,911	6,502	2,209	175	25			2,121	
West Virginia	13,521	9,861	4,968	2,333	157		2,403	3,660		
Wisconsin	33,112	19,905	15,115	4,777	13			3,617	6,678	2,912
Wyoming	4,360	4,171	3,241	753	[1] −15	19	173	165		24
Total	782,006	666,062	446,841	138,830	15,247	4,623	60,521	56,309	42,797	16,838

[1] Equipment rentals exceeded equipment expense.
[2] For 9-month period only.
[3] For 11-month period only.
[4] For 6-month period only.

Bureau of Public Roads.

TABLE 523.—*Motor-vehicle registration and revenues, by States, 1933, and totals for 1925–32, as reported by State authorities*

State	Registered motor vehicles			Gross registration receipts	Disposition of gross receipts [1]			
	All motor cars and trucks	Passenger autos, taxis, and busses	Motor trucks and road tractors		Collection costs	Construction, maintenance, etc.		On road bonds and miscellaneous
						State highways [1]	Local roads	
	Number	*Number*	*Number*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Alabama	206,361	176,523	29,838	2,724	141	987	531	1,065
Arizona	89,496	74,927	14,569	648	172	476	-------	-------
Arkansas	188,242	155,262	32,980	1,769	76	1,069	-------	624
California	1,958,807	1,738,720	220,087	9,866	1,722	2,902	2,902	2,340
Colorado	266,491	239,058	27,433	2,036	139	604	610	683
Connecticut	314,751	262,187	52,564	7,851	1,018	6,833	-------	-------
Delaware	51,099	42,614	8,485	1,014	-------	799	-------	215
Florida	279,265	234,246	45,019	4,995	396	-------	-------	4,599
Georgia	330,147	278,935	51,212	1,036	138	898	-------	-------
Idaho	96,255	81,371	14,884	1,402	105	124	1,173	-------
Illinois	1,463,050	1,276,864	186,186	16,229	272	5,599	1,030	[2] 9,328
Indiana	770,069	653,709	116,360	6,468	269	2,751	1,101	[2] 2,347
Iowa	632,292	562,802	69,490	10,696	435	9,905	-------	356
Kansas	517,987	445,583	72,404	3,057	199	1,058	1,800	-------
Kentucky	294,547	262,436	32,111	4,174	236	3,387	551	-------
Louisiana	232,688	190,681	42,007	4,053	131	3,602	-------	320
Maine	168,173	132,902	35,271	2,909	490	515	-------	1,904
Maryland	313,274	278,546	34,728	3,581	559	2,115	-------	[2] 907
Massachusetts	789,788	689,934	99,854	6,508	1,512	2,402	764	[2] 1,830
Michigan	1,077,209	955,570	121,639	18,560	793	10,145	6,000	1,622
Minnesota	679,243	580,113	99,130	6,367	298	2,806	-------	3,263
Mississippi	164,688	131,764	32,924	1,870	99	103	1,668	-------
Missouri	698,362	594,567	103,795	9,357	331	1,591	-------	7,435
Montana	110,245	82,765	27,480	1,070	43	-------	1,027	-------
Nebraska	390,651	336,704	53,947	1,722	72	495	1,155	-------
Nevada	28,324	22,397	5,927	300	43	82	-------	175
New Hampshire	107,631	87,759	19,872	2,167	97	2,070	-------	-------
New Jersey	845,734	723,506	122,228	15,378	1,548	2,500	7,200	4,130
New Mexico	76,643	61,353	15,290	667	93	287	93	194
New York	2,240,757	1,942,249	298,508	42,318	3,396	8,475	5,765	[2] 24,682
North Carolina	382,308	332,648	49,660	5,356	179	1,248	1,194	2,735
North Dakota	153,889	128,547	25,342	1,382	93	14	175	1,100
Ohio	1,554,314	1,396,125	158,189	17,678	506	3,805	10,014	[2] 3,353
Oklahoma	451,712	385,755	65,957	3,382	171	1,282	1,754	[3] 175
Oregon	239,410	207,202	32,208	5,337	283	2,069	1,149	1,836
Pennsylvania	1,635,019	1,415,522	219,497	29,185	3,882	16,988	-------	8,315
Rhode Island	136,261	118,296	17,965	2,198	292	853	53	1,000
South Carolina	162,735	144,940	17,795	2,503	69	437	-------	1,997
South Dakota	169,249	146,485	22,764	1,459	53	283	1,123	-------
Tennessee	312,180	278,332	33,848	2,940	120	1,337	1,337	146
Texas	1,201,762	1,013,086	188,676	12,748	633	3,899	8,216	-------
Utah	100,362	84,014	16,348	798	60	-------	-------	738
Vermont	73,576	65,652	7,924	2,073	112	1,438	270	253
Virginia	344,704	288,048	56,656	6,090	615	5,475	-------	-------
Washington	427,406	364,858	62,548	2,483	410	1,401	511	[2] 161
West Virginia	226,985	193,570	33,415	3,838	149	-------	-------	3,689
Wisconsin	670,797	566,450	104,347	9,768	768	4,009	2,213	[2] 2,778
Wyoming	52,560	41,917	10,643	679	13	500	-------	166
District of Columbia	149,790	133,048	16,742	626	85	-------	-------	[2] 541
Total, 1933	23,827,288	20,600,542	3,226,746	301,315	23,316	119,618	61,379	[3] 97,002
Total:								
1932	24,114,977	20,883,625	3,231,352	324,274	17,551	155,912	75,964	74,847
1931	25,814,103	22,348,023	3,466,080	344,338	19,689	200,734	70,043	53,872
1930	26,545,281	23,059,262	3,486,019	355,705	19,197	222,147	68,578	45,783
1929	26,501,443	23,121,589	3,379,854	347,844	17,403	223,293	66,861	40,287
1928	24,493,124	21,379,125	3,113,999	322,630	15,134	208,880	60,399	38,217
1927	23,133,241	20,219,223	2,914,018	301,061	14,876	189,985	53,578	42,622
1926	22,001,393	19,237,171	2,764,222	288,282	16,602	191,111	51,702	28,867
1925	19,937,274	17,496,420	2,440,854	260,620	11,993	177,707	48,396	22,524

[1] These figures are not comparable with those on highway income table.
[2] Includes amount allocated to city streets.
[3] Includes $10,319,000 to city streets.

Bureau of Public Roads.

TABLE 524.—*Gasoline taxes, by States, 1933, and totals for 1925–32, as reported by State authorities*

State	Total tax (refunds deducted)	Disposition of total taxes collected					Gallons consumed by motor vehicles	Tax rate per gallon
		Collection costs	Construction, etc.		State and county road-bond payments	Miscellaneous and city streets		
			State highways [1]	Local roads				
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 gallons*	*Cents*
Alabama	8,033	18	2,508	4,002	1,505		133,886	6
Arizona	2,679		1,608	924		147	53,581	5
Arkansas	5,998	220	1,376	640	3,446	316	114,792	6
California	35,217	82	22,817	12,037		[2] 281	1,173,905	3
Colorado	5,325	61	3,685	1,421		[2] 158	133,125	4
Connecticut	4,857		4,857				240,581	2
Delaware	1,130		851		279		37,578	3
Florida	14,293	21	6,107		6,107	2,058	203,562	7
Georgia	12,635	63	8,381	2,095		2,096	210,575	6
Idaho	2,283	12	2,055		216		45,647	5
Illinois	27,833	133	18,467	5,468		3,765	927,767	3
Indiana	16,289	71	8,109	6,487		[3] 1,622	407,080	4
Iowa	9,372	59	3,375	3,838	2,100		312,411	3
Kansas	7,771	179	5,779	1,800		13	257,727	3
Kentucky	8,316	48	8,268				166,293	5
Louisiana	8,155	62	2,361		4,101	1,631	163,139	5
Maine	4,127	16	2,056	2,055			102,009	4
Maryland	7,208	17	5,385	7		[2] 1,799	180,194	4
Massachusetts	16,377	50	6,517	2,074	314	7,422	545,912	3
Michigan	19,485	110	2,303	14,045	3,000	27	648,615	3
Minnesota	10,214		6,425	3,600		189	333,829	3
Mississippi	6,101	23	2,875	2,573	495	135	96,695	6
Missouri	9,081	56	9,025				454,057	2
Montana	2,751	32	2,650		69		55,026	5
Nebraska	7,706	56	5,096	2,299		[2] 255	192,656	4
Nevada	696		696				17,391	4
New Hampshire	2,350		1,762		588		58,746	4
New Jersey	16,471	53	2,438	6,397	2,296	5,287	546,580	3
New Mexico	2,282	34	898		1,350		45,310	5
New York	43,393	141	21,647	5,761		[2] 15,844	1,444,838	3
North Carolina	14,773	6	4,953	2,931	6,540	343	246,160	6
North Dakota	1,925	25	1,267	633			64,132	3
Ohio	33,940	153	15,427	7,641		[2] 10,719	838,020	4
Oklahoma	10,079	65	4,995	2,419		2,600	251,617	4
Oregon	6,344	21	4,604		1,719		135,820	5
Pennsylvania	31,060	350	22,142	5,111	3,457		1,024,637	3
Rhode Island	1,885		1,247		302	336	94,049	2
South Carolina	6,679		1,924	1,113	3,642		111,322	6
South Dakota	3,346	41	1,900			1,405	78,382	4
Tennessee	12,980	155	3,481	3,848	5,496		185,427	7
Texas	28,479	201	14,139		7,070	7,069	711,984	4
Utah	2,190	4	2,186				54,725	4
Vermont	1,766		1,321	230	215		44,154	4
Virginia	11,082	25	7,740	3,317			221,641	5
Washington	10,863	23	7,971	2,000		869	217,264	5
West Virginia	4,928	12	1,759		3,157		122,992	4
Wisconsin	15,169	30	9,255	3,992	1,284	[2] 608	379,236	4
Wyoming	1,405		829	351	225		35,135	4
District of Columbia	2,082					[2] 2,082	104,117	2
Total, 1933	519,403	2,728	277,517	111,109	58,973	[3] 69,076	14,224,321	[4] 3.65
Total:								
1932	514,139	2,833	301,788	94,074	50,726	64,718	14,250,173	[4] 3.60
1931	537,589	2,117	354,017	100,074	42,488	38,893	15,407,650	[4] 3.48
1930	494,683	1,102	338,927	96,226	31,049	27,379	14,751,309	[4] 3.35
1929	431,636	778	297,968	85,113	23,372	24,405	13,400,180	[4] 3.22
1928	305,234	695	211,046	57,381	17,620	18,492	10,178,345	[4] 3.00
1927	258,967	500	182,096	55,440	10,086	10,845	9,366,652	[4] 2.76
1926	187,603	239	129,442	43,609	5,239	9,074	7,883,984	[4] 2.38
1925	146,029	217	98,605	31,849	4,333	11,025	6,457,783	[4] 2.26

[1] These figures are not comparable to those shown on highway income table.
[2] Includes city streets.
[3] Includes $13,334 to city streets.
[4] Weighted average.

Bureau of Public Roads.

TABLE 525.—*Current status of United States Public Works road construction, provided in title II, section 204 of the National Industrial Recovery Act, as of June 30, 1934* [1]

State	Total apportionment of Public Works funds	Completed				Under construction				Approved for construction	
		Total cost	Public Works funds	Regular Federal aid	Mileage	Estimated total cost	Public Works funds allotted	Regular Federal aid allotted	Mileage	Public Works funds allotted	Mileage
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Miles*	*Dollars*	*Dollars*	*Dollars*	*Miles*	*Dollars*	*Miles*
Alabama	8,370,133	1,806,652.38	1,090,782.86	715,869.52	65.1	6,616,632.75	4,579,589.21	2,037,043.54	370.0	1,898,471.75	122.9
Arizona	5,211,960	2,046,484.71	2,004,382.65		141.4	3,339,932.74	2,746,710.97		196.5	381,624.30	12.7
Arkansas	6,748,335	609,101.26	481,665.31	127,435.95	32.4	4,782,355.25	4,336,045.66	445,578.34	284.3	1,258,915.07	39.1
California	15,607,354	5,656,013.18	4,528,869.81		172.3	12,089,450.96	9,875,918.69		343.6	930,345.26	26.2
Colorado	6,874,530	3,022,131.93	2,962,379.61		195.4	3,737,033.79	3,571,936.47	27,435.65	162.3	230,989.02	7.0
Connecticut	2,865,740	80,124.44	80,124.44		.6	2,896,535.29	2,711,818.89	178,920.82	54.4	68,293.81	.5
Delaware	1,819,088	274,915.09	266,277.02		3.8	1,083,829.70	1,083,829.70		18.4	218,067.50	17.4
Florida	5,231,834	1,916,897.59	1,390,159.38	526,738.21	73.3	4,097,779.72	3,583,473.43	513,696.19	131.7	84,705.09	4.3
Georgia	10,091,185	1,572,745.52	1,572,745.52		90.2	4,368,602.28	4,368,602.28		290.1	1,045,325.29	59.5
Idaho	4,486,249	1,666,092.63	1,586,453.50		157.4	2,793,637.80	2,715,549.72		178.1	13,782.82	
Illinois	17,570,770	540,636.64	540,605.69		46.6	13,621,077.74	13,621,077.74		377.6	3,176,243.20	26.6
Indiana	10,037,843	49,616.53	49,616.53		1.2	7,494,686.64	7,450,567.81		238.2	2,077,512.89	32.5
Iowa	10,055,660	1,999,978.66	1,936,465.00		147.3	7,267,687.25	6,716,960.00		421.2	736,695.00	73.5
Kansas	10,089,604	2,403,085.86	2,398,545.41		242.2	8,030,154.68	7,646,070.45		356.4	44,988.14	2.1
Kentucky	7,517,359	1,131,158.04	1,126,634.92		131.8	4,722,349.06	4,705,771.28		341.7	959,218.81	31.5
Louisiana	5,828,591	625,710.21	625,685.21		18.6	4,453,210.60	3,946,559.60		128.2	838,890.20	15.8
Maine	3,369,917	739,856.65	732,388.69		56.9	2,509,937.71	2,386,704.77		85.3	48,534.12	.6
Maryland	3,564,527	22,217.70	22,217.70		1.9	1,769,410.69	1,741,685.94		62.5	724,195.90	23.4
Massachusetts	6,597,100	386,424.52	286,228.62	92,984.24	8.2	6,068,458.12	5,713,722.32	354,735.80	60.3	250,293.28	1.0
Michigan	12,736,227	364,350.00	364,350.00		11.4	10,698,825.00	10,647,675.00	49,000.00	497.3	1,198,741.00	27.2
Minnesota	10,656,569	4,018,218.36	3,985,730.25	20,482.87	644.9	5,481,281.76	5,432,453.84	30,000.00	469.7	439,906.43	19.0
Mississippi	6,978,675	411,372.98	274,599.14	136,773.84	16.6	6,026,784.62	3,921,151.83	2,067,000.85	353.0	1,024,541.35	76.2
Missouri	12,180,306	1,958,601.48	1,732,331.58		198.0	9,644,757.95	8,901,113.11	68,548.60	542.0	631,233.65	20.4
Montana	7,439,748	2,484,917.43	2,304,901.43	100,000.00	200.2	5,246,316.95	4,886,660.15	237,025.83	412.5	237,042.81	48.8
Nebraska	7,828,961	2,605,201.12	2,016,707.53	108,538.00	297.8	6,366,062.53	5,641,588.82		370.5	147,076.19	11.3
Nevada	4,545,917	2,097,159.73	2,097,159.73		244.8	2,120,252.90	2,120,252.90		122.3	79,129.02	
New Hampshire	1,909,839	134,671.58	134,671.58		2.8	1,715,129.51	1,653,798.25		49.3	42,274.05	.9
New Jersey	6,346,039	160,151.25	160,151.25		8.2	5,659,697.65	5,450,643.64	169,466.42	56.8	104,945.89	1.1
New Mexico	5,792,935	2,662,688.71	2,662,688.71		285.7	2,782,780.24	2,638,350.82	143,929.42	316.4	128,714.77	9.8
New York	22,330,101	2,103,667.14	1,003,225.84	43,000.00	23.8	22,989,026.28	20,415,058.68	354,000.00	375.5	179,797.80	9.0
North Carolina	9,522,293	2,316,265.85	1,990,948.67	322,943.66	185.1	5,392,834.10	4,999,941.10	353,330.77	625.7	859,624.03	78.0
North Dakota	5,804,448	1,185,566.32	1,182,236.34	3,294.32	468.6	2,145,185.02	1,919,321.79	225,863.23	440.8	1,613,983.73	328.4
Ohio	15,484,592	2,141,452.27	2,096,220.71		197.1	13,863,632.43	12,775,221.43	51,410.00	348.8	519,316.37	10.2
Oklahoma	9,216,798	1,491,881.34	1,489,920.12		112.2	6,379,056.84	6,273,059.89		422.7	911,212.35	81.4
Oregon	6,106,896	2,488,491.83	2,302,156.66	98,444.47	150.4	3,548,284.40	3,276,350.18	128,021.20	153.5	408,509.78	15.8
Pennsylvania	18,891,004	1,292,671.11	1,275,142.80		51.3	15,863,939.07	15,536,514.87		763.1	1,328,626.91	32.6
Rhode Island	1,998,708	104,241.40	104,241.40		2.3	1,688,559.28	1,688,559.28		57.8	115,371.04	1.0

South Carolina	5,459,165	465,522.03	465,522.03		30.0	4,012,419.10	4,009,284.47	3,134.63	360.5	458,295.22	25.5
South Dakota	6,011,479	1,453,187.56	1,433,846.17	19,341.39	266.2	2,957,477.42	2,649,683.60	307,793.82	412.5	834,642.10	204.0
Tennessee	8,192,619	2,043,736.55	1,830,674.25	213,062.30	97.5	5,009,525.75	4,648,365.56	361,160.19	192.6	1,442,646.74	77.8
Texas	24,244,024	8,173,921.58	6,863,517.91		1,007.7	14,546,596.99	13,624,462.13		873.7	1,055,547.40	37.7
Utah	4,194,708	2,575,936.17	2,537,560.60		267.2	1,322,833.39	1,296,874.14		102.9	137,171.79	6.3
Vermont	1,867,573	132,315.95	131,718.66		9.3	1,747,512.74	1,676,099.12	5,838.96	85.4	43,745.83	1.1
Virginia	7,416,757	2,022,430.39	1,972,211.54	18,234.52	148.0	4,500,288.02	4,128,116.07	119,858.30	202.0	886,111.73	29.8
Washington	6,115,867	2,475,339.20	2,446,222.83	3,356.82	93.0	3,535,412.21	3,535,412.21		108.7	92,379.97	5.3
West Virginia	4,474,231	320,707.27	320,707.27		9.3	3,554,123.66	3,523,777.92		131.1	349,106.66	12.1
Wisconsin	9,724,881	2,367,133.14	2,315,177.28	1,190.00	122.3	6,757,332.51	6,575,489.78	64,398.24	304.8	470,966.51	21.1
Wyoming	4,501,327	1,552,598.23	1,118,434.69	80,400.00	236.1	2,972,049.23	2,776,765.01	85,908.57	382.8	172,329.92	23.0
District of Columbia	1,918,469	497,559.88	497,559.88		5.0	1,431,548.68	1,414,564.86		7.5		
Hawaii	1,871,062	122,232.70	109,225.57	12,994.32	6.3	1,803,971.40	1,502,765.58	251,205.82	31.4	248,693.76	6.8
Total	394,000,000	79,774,036.09	73,201,990.29	2,645,084.43	6,985.7	283,506,260.40	263,042,470.96	8,634,305.19	13,674.4	31,148,776.25	1,718.2

[1] A table showing the current status of Federal-aid road construction has been published in previous Yearbooks but is omitted this year, since no Federal-aid authorization was made for the fiscal year ended June 30, 1934.

Bureau of Public Roads.

TABLE 526.—*Annual average wage rate per hour for common labor employed on Federal-aid highway projects, 1924–33 and on Public Works highway projects, 1933–34*

FEDERAL-AID PROJECTS[1]

Year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	United States
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	49	43	40	36	28	24	27	40	53	38
1925	46	43	37	37	27	25	26	44	52	38
1926	49	47	38	36	29	25	27	44	52	38
1927	49	47	39	37	28	25	30	45	53	40
1928	49	43	39	38	26	26	28	46	52	41
1929	51	43	39	37	28	26	31	47	53	39
1930	50	42	38	37	25	24	28	47	53	39
1931	45	37	36	35	22	20	23	45	51	36
1932	35	36	36	32	19	19	26	44	48	32
1933	35	34	38	29	21	19	28	47	48	32

PUBLIC WORKS PROJECTS[2]

1933	40	40	47	45	31	30	35	55	56	44
1934	43	41	50	44	31	30	35	55	57	42

[1] The volume of Federal-aid construction unaffected by the wage scales required on Public Works construction was so small in 1934 that average figures are not reported for that year.
[2] For these projects it is required that minimum wage rates, sufficient to provide (for the hours of labor as limited) a standard of living in decency and comfort, shall be fixed by State highway departments.

Bureau of Public Roads.

TABLE 527.—*Fertilizer materials: Sales and production of agricultural lime, phosphate rock, sulphur, and pyrites, in quantity and value, United States, 1931–33*

Item	Quantity			Value		
	1931	1932	1933	1931	1932	1933
Agricultural lime and liming materials sold:[1]	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*	*Dollars*
Lime from limestone:						
Quicklime	78,392	71,858	84,267	422,107	343,501	345,566
Hydrated	218,920	172,716	161,843	1,502,042	1,023,270	1,002,681
Lime from oyster shells[2]	11,207	10,626	3,314	85,884	44,688	22,948
Limestone pulverized	1,421,050	[3] 910,430	994,540	2,117,141	[3] 1,230,542	1,239,724
Calcareous marl	25,056	11,575	10,641	65,935	28,000	34,865
Total	1,754,625	1,177,205	1,254,605	4,193,109	2,670,001	2,615,784
Phosphate rock sold or used:[4]						
Sold for direct application to the soil	*Long tons* 21,597	*Long tons* 7,033	*Long tons* 7,481			
Florida:						
Hard rock	57,224	57,579	52,382	380,540	373,251	347,324
Land pebble[5]	2,004,242	[6] 1,412,397	2,083,741	6,821,546	[6] 4,406,361	6,069,786
Tennessee:						
Brown and blue rock	343,622	[7] 193,666	[7] 333,946	1,545,607	[7] 776,367	[7] 1,373,392
Other States[8]	129,871	43,262	20,243	540,792	182,514	81,860
Total	2,534,959	1,706,904	2,490,312	9,288,485	5,738,493	7,872,362
Sulphur producted	2,128,930	890,440	1,406,063			
Sulphur sold	1,376,526	1,108,852	1,637,368	[9] 24,800,000	[9] 20,000,000	[9] 29,500,000
Pyrites produced	330,848	189,703	284,311	974,820	492,043	755,420

[1] Sold by producers. (Includes a small amount sold by Hawaii and Puerto Rico producers.)
[2] Partly estimated.
[3] Includes pulverized marble.
[4] Sold or used by producers.
[5] Includes soft rock.
[6] Includes a small quantity of tailings.
[7] Includes a small quantity of apatite from Virginia.
[8] Includes Idaho, Wyoming, and Montana in 1931; Idaho and Montana in 1932 and 1933.
[9] Approximate.

Bureau of Agricultural Economics; compiled from reports of the Bureau of Mines.
Figures for earlier years appear in previous issues of the Yearbook.

TABLE 528.—*Fertilizers: Production and value, by States, 1931; United States, 1931 and 1933*

State	Quantity				Value			
	Complete fertilizers	Superphosphates [1]	Other fertilizers [2]	Total	Complete fertilizers	Superphosphates [1]	Other fertilizers [2]	Total
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Maine	87,276	(3)	(3)	89,443	3,532,284	(3)	(3)	3,597,949
Massachusetts	116,254	40,431	5,855	162,540	2,855,641	395,200	170,075	3,420,916
Connecticut	40,872	(3)	(3)	44,880	1,567,036	(3)	(3)	1,791,740
New York	83,590	(3)	(3)	138,838	2,116,992	(3)	(3)	2,776,995
New Jersey	179,081	(3)	(3)	244,821	4,369,774	(3)	(3)	5,635,445
Pennsylvania	116,129	55,656	32,290	204,075	2,958,174	501,204	725,372	4,184,750
Ohio	237,932	105,128	39,244	382,304	6,462,653	1,472,790	865,996	8,801,439
Indiana	75,733	13,135	16,172	105,040	2,008,599	220,693	425,544	2,654,836
Illinois	140,844	42,783	37,293	220,920	4,099,956	661,605	847,934	5,609,495
Maryland	407,154	539,550	25,772	972,476	8,912,251	4,501,723	443,917	13,857,891
Virginia	491,685	94,687	62,087	648,459	10,454,984	957,333	829,655	12,241,972
North Carolina	579,405	169,118	19,622	768,145	12,386,479	1,700,146	435,467	14,522,092
South Carolina	294,734	132,334	4,218	431,286	6,019,943	1,342,815	72,551	7,435,309
Georgia	635,661	238,845	16,294	890,800	13,797,457	2,551,395	316,503	16,665,355
Florida	319,432	101,683	12,529	433,644	9,413,715	1,131,951	377,567	10,923,233
Tennessee	107,441	96,394	19,272	223,107	2,207,532	1,161,517	405,461	3,774,510
Alabama	223,372	87,744	2,189	313,305	4,884,868	944,034	37,934	5,866,836
Mississippi	76,680	(3)	(3)	101,270	2,097,410	(3)	(3)	2,409,225
Arkansas	20,669	(3)	(3)	23,751	601,438	(3)	(3)	641,806
Louisiana	90,729	58,751	11,346	160,826	2,344,141	642,389	274,511	3,261,041
Texas	33,306	(3)	(3)	54,286	973,140	(3)	(3)	1,319,864
California	54,463	(3)	(3)	105,003	2,379,115	(3)	(3)	3,943,693
Other States [4]	132,208	74,424	41,830	248,462	3,728,919	955,374	697,216	5,381,509
Undistributed		117,490	108,865			1,538,047	2,941,481	
Total	4,544,650	1,965,153	454,878	6,967,681	110,172,501	20,678,216	9,867,184	140,717,901
Total 1931 adjusted [5]	4,461,270	1,963,503	389,028	6,813,801	107,981,716	20,638,816	8,538,743	137,159,275
Total 1933 [6]	3,273,744	1,545,782	376,436	5,195,962	61,179,998	12,881,737	8,749,218	82,810,953

[1] Includes concentrated phosphates; basis 16-percent available phosphoric acid.
[2] Fish scrap, potash-superphosphate, bone meal and "other fertilizers."
[3] Included in "undistributed", in order to avoid disclosing data for individual establishments.
[4] States, which if shown separately, would disclose the operations of individual establishments. Certain States in this group, however, outranked some of the States shown separately.
[5] Comparable with 1933 total.
[6] Excludes data for the smaller manufacturers in the fertilizer industry and other establishments manufacturing fertilizer products.

Bureau of Agricultural Economics. Compiled from reports of the Bureau of the Census.

TABLE 529.—*Fertilizer: Consumption in the United States, by States, 1923–33*

State and division	Calendar year[1]										
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933[2]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
Maine	[3] 168	[3] 182	[3] 185	147	184	[4] 179	186	196	195	175	149
New Hampshire [8]	17	16	16	15	17	17	[5] 12	11	11	11	[4] 10
Vermont	[3] 18	[3] 17	[3] 18	[3] 18	16	17	15	16	15	12	10
Massachusetts	64	62	63	59	72	71	[5] 69	67	65	62	55
Rhode Island [4]	9	9	9	8	10	10	[5] 8	8	7	7	6
Connecticut	[3] 70	[3] 70	[3] 70	[3] 70	[3] 65	[3] 72	[3] 69	[3] 69	70	50	[3] 47
New York	[4] 250	[4] 250	253	234	260	[4] 260	[5] 288	[4] 288	[4] 260	235	212
New Jersey	157	153	147	135	142	144	[5] 162	156	151	138	128
Pennsylvania	309	320	328	329	327	340	[5] 348	334	287	235	212
North Atlantic	1,062	1,079	1,089	1,015	1,093	1,110	1,157	1,145	1,061	925	829
Ohio	303	321	322	305	313	321	339	327	249	169	209
Indiana [6]	198	192	226	228	240	221	250	224	166	80	98
Illinois	17	17	25	25	[4] 26	31	38	41	32	16	17
Michigan	84	95	109	105	117	[4] 150	[4] 153	[4] 145	105	83	[4] 74
Wisconsin	15	15	12	16	23	33	41	51	46	27	16
Minnesota	[4] 7	[4] 8	[4] 9	11	11	14	[5] 16	16	18	9	7
Iowa	[4] 4	[4] 5	[3] 6	[7] 6	[7] 7	[3] 10	[5] 21	[3] 25	[3] 22	10	[4] 5
Missouri [6]	52	47	64	57	56	65	59	60	49	26	32
Kansas	[4] 5	[4] 5	[3] 4	8	[4] 8	9	[6] 10	[6] 6	[6] 3	3	2
Other States	1	1	1	1	1	1	2	3	2	1	2
North Central	686	706	778	762	802	855	929	898	692	424	462
Delaware	37	36	41	43	41	41	[5] 43	43	36	33	28
Maryland	155	151	165	163	173	165	[5] 180	177	146	125	133
Virginia [6]	422	442	452	435	408	438	430	449	379	280	308
West Virginia [4]	40	40	41	43	44	50	[5] 46	45	40	35	32
North Carolina [6]	1,066	1,183	1,218	1,218	1,171	1,349	1,294	1,242	1,003	696	889
South Carolina [6]	693	844	873	840	727	788	760	749	599	446	582
Georgia [6]	676	679	779	780	713	883	869	929	686	357	416
Florida [6]	398	365	359	399	417	469	427	489	419	381	353
South Atlantic	3,487	3,740	3,928	3,921	3,686	4,191	4,094	4,123	3,308	2,353	2,741
Kentucky	90	85	93	92	70	90	93	114	105	55	58
Tennessee [6]	106	115	142	156	112	151	143	164	119	63	77
Alabama [6]	448	457	598	615	478	681	675	644	420	205	287
Mississippi [6]	208	206	258	278	219	333	328	404	197	85	104
Arkansas [6]	80	97	123	126	75	126	157	158	62	17	22
Louisiana [6]	105	125	111	114	93	144	174	176	94	49	61
Oklahoma	[4] 4	[4] 4	[3] 5	[3] 6	[3] 4	[6] 8	[6] 9	[6] 7	[6] 7	[6] 3	[6] 2
Texas [6]	79	128	101	125	81	145	192	145	65	34	34
South Central	1,120	1,217	1,431	1,512	1,132	1,678	1,771	1,812	1,069	511	645
Washington	[3] 5	[3] 7	[4] 10	12	14	[4] 16	[5] 21	[4] 22	[4] 18	9	8
Oregon	[4] 8	[4] 8	[4] 8	[4] 8	[4] 9	[3] 10	[5] 12	[3] 12	[3] 11	10	10
California	72	66	86	94	103	121	130	142	132	127	113
Other States	2	2	3	4	4	4	[5] 10	10	15	10	5
Western	87	83	107	118	130	151	173	186	176	156	136
United States	6,442	6,825	7,333	7,328	6,843	7,985	8,079	8,164	6,306	4,369	4,813

[1] Except as follows: New Hampshire, Massachusetts, Idaho, and Oklahoma (1922–28), year ended June 30; Rhode Island, year ended Mar. 31; New Jersey, year ended Oct. 31.
[2] Preliminary.
[3] Estimated by State authorities.
[4] Estimated.
[5] Agricultural census.
[6] Based on tag sales.
[7] Total of 4 companies plus estimates for others.

Bureau of Agricultural Economics; compiled from reports of the National Fertilizer Association, published in the Fertilizer Review; based on fertilizer tag sales or sale records, or estimates, as shown in footnotes.

TABLE 530.—*Fertilizer and fertilizer materials: Production, sales, imports, exports, and consumption, United States, 1929–33*

Item	1929	1930	1931	1932	1933 [1]
Sulphate of ammonia (equivalent of all forms):	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Production [2 3]	856, 214	769, 022	569, 986	356, 108	420, 293
Sales [2 3]	827, 674	746, 031	578, 475	372, 243	411, 920
Imports for consumption	21, 338	39, 160	127, 999	344, 188	393, 405
Exports	162, 132	91, 461	74, 930	16, 511	15, 968
Nitrate of soda, imports for consumption	1, 042, 113	643, 881	616, 687	56, 482	137, 610
Sulphuric acid:					
Production	2, 262, 784	2, 228, 588	1, 427, 923	952, 581	1, 366, 973
Imports for consumption	8, 104	459	1, 172	749	1, 024
Exports	3, 480	2, 735	1, 601	1, 516	
Consumption [4]	2, 445, 581	2, 476, 712	1, 351, 551	770, 592	1, 206, 117
Superphosphate:					
Production [4]	4, 342, 012	4, 595, 096	2, 744, 528	1, 765, 971	2, 694, 870
Sales [4 5]	1, 430, 700	1, 455, 259	1, 030, 665	709, 074	824, 176
Exports	95, 332	125, 058	91, 377	26, 749	39, 616
Potash:					
Production	107, 820	105, 810	133, 920	143, 120	333, 110
Sales	101, 370	98, 280	133, 430	121, 390	325, 481
Exports	15, 532	17, 042	32, 460	2, 034	28, 086
Imports (general) [6] from—					
Spain	21, 596	25, 811	29, 897	17, 725	66, 564
Germany	543, 072	567, 382	306, 028	187, 657	221, 562
Netherlands [7]	12, 804	29, 420	133, 577	42, 691	100, 920
France			3, 720	5, 364	6, 116
Belgium [8]	292, 482	309, 417	54, 116	28, 866	22, 120
Other countries	548	1, 295	1, 455	5, 235	8, 288
Total	870, 502	933, 325	528, 793	287, 538	425, 570
Imports for consumption:					
Kainit	85, 042	125, 455	61, 750	55, 299	114, 228
Manure salts	437, 727	405, 215	200, 600	113, 038	126, 696
Muriate of potash	258, 682	306, 047	202, 204	87, 761	118, 203
Sulphate of potash	89, 051	96, 608	63, 663	31, 440	66, 444
Other potash-bearing substances	706	613	547	393	503
Total	871, 208	933, 938	528, 764	287, 931	426, 074

[1] Preliminary.
[2] Byproduct of coke ovens; production from other sources (coal, gas, bone carbonizing, etc.) is usual ss than 5 percent of the total production.
[3] Includes ammonia liquor NH^3 content converted to sulphate equivalent.
[4] Fertilizer establishments only.
[5] Bulk superphosphate. Superphosphate in base and mixed goods excluded.
[6] Includes kainit, manure salts, sulphate of and muriate of potash.
[7] Originated mostly in Germany.
[8] Originated mostly in France.

Bureau of Agricultural Economics; compiled as follows: Production and sales, sulphate of ammonia and potash from Bureau of Mines; sulphuric acid and superphosphate from Bureau of the Census; imports and exports from Bureau of Foreign and Domestic Commerce.

TABLE 531.—*Nitrogen: World production of, contained in inorganic nitrogeneous materials, 1929–34*

Product	Quantity produced during year ended June 30					
	1929	1930	1931	1932	1933	1934
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Byproduct sulphate of ammonia	413, 600	466, 900	395, 600	331, 800	283, 500	336, 500
Other byproduct ammonia [1]	56, 100	56, 500	34, 000	33, 000	43, 500	49, 500
Cyanamide	211, 200	290, 200	221, 000	148, 100	185, 300	211, 700
Synthetic sulphate of ammonia	533, 500	486, 300	384, 000	574, 400	646, 000	594, 300
Nitrate of lime	149, 600	143, 500	121, 600	86, 800	130, 100	116, 600
Other synthetic nitrogen [1]	421, 300	470, 000	432, 500	382, 600	508, 300	563, 100
Chilean nitrate of soda	539, 000	510, 400	275, 000	187, 000	77, 900	93, 700
Total	2, 324, 300	2, 423, 800	1, 863, 700	1, 743, 700	1, 844, 600	1, 965, 400

[1] Including ammonia products used for industrial purposes and ammonia in mixed fertilizers.

Bureau of Chemistry and Soils. British Sulphate of Ammonia Federation (Ltd.), annual report.
Fertilizers are included in this table under the final form as sold, so that, for example, cyanamide if concerted into sulphate of ammonia is included under synthetic sulphate of ammonia, or, if into ammophos, is included under other synthetic nitrogen.

TABLE 532.—*Insecticides and fungicides: Production, sales, imports for consumption and domestic exports, 1928–33*

Item	1928	1929	1930	1931	1932	1933
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Arsenic, white:						
Production [1]	28, 362, 000	33, 210, 000	34, 114, 000	34, 274, 000	25, 408, 000	21, 300, 000
Sales: [2]						
Refined	16, 230, 000	19, 646, 000	29, 308, 000	23, 964, 000	21, 016, 000	17, 536, 000
Crude	7, 304, 000	9, 446, 000	5, 542, 000	3, 590, 000	3, 950, 000	6, 058, 000
Imports for consumption	22, 305, 972	26, 314, 042	20, 942, 663	15, 581, 398	13, 764, 683	21, 116, 720
Calcium arsenate:						
Production		33, 064, 426		26, 128, 620		
Imports for consumption	1, 323		6, 359	40, 950	4, 500	11, 023
Exports	1, 178, 702	3, 139, 633	3, 177, 335	2, 145, 653	2, 533, 599	2, 585, 824
Lead arsenate:						
Production		30, 682, 379		37, 974, 038		
Imports for consumption		200	800			1, 000
Exports	1, 093, 673	1, 563, 982	2, 270, 980	1, 788, 345	1, 189, 629	598, 699
Sulphate of copper:						
Production [3]	44, 463, 000	40, 258, 860	36, 976, 403	35, 265, 409	24, 908, 525	25, 436, 881
Imports for consumption	3, 611, 844	5, 388, 743	5, 964, 378	2, 643, 741	3, 234, 058	46, 959
Exports	8, 666, 899	6, 419, 688	5, 061, 554	7, 190, 919	4, 132, 529	2, 749, 299
Tobacco extracts, exports [4]	2, 386, 526	2, 294, 567	1, 929, 171	1, 542, 811	1, 315, 947	1, 447, 215
Sodium arsenate: Imports for consumption	12, 403	133, 539	94, 051	9, 284	5, 763	4, 974
Prepared animal dips:						
Imports for consumption [5]	175, 055	208, 770	174, 215	154, 530	62, 509	106, 751
Exports		2, 252, 644	1, 258, 139			

[1] Byproduct from the mining of copper, lead, and iron ores. (Bureau of Mines.) The production for sale in the "Miscellaneous Chemical Industry," as reported by the Census, was 34,352,500 pounds in 1931 and 21,152,574 pounds in 1933, with some plants not reporting.

[2] Sales by producers. (Bureau of Mines.)

[3] Copper industry only. (Bureau of Mines.) The production for sale in the "Miscellaneous Chemical Industry", as reported by the Census, was 60,816,515 pounds in 1931 and 55,949,580 pounds in 1933.

[4] Nicotine sulphate and "other tobacco extracts."

[5] Classified as sheep dip.

Bureau of Agricultural Economics; production and sales from Bureau of the Census and Bureau of Mines (indicated by footnote); imports and exports from the Bureau of Foreign and Domestic Commerce.

TABLE 533.—*Insecticides and fungicides: Average wholesale price per pound at New York, 1924–34* [1]

Calendar year	Arsenic white	Calcium arsenate	Lead arsenate		Paris green	Bordeaux mixture		Lime-sulphur solution, per gallon
			Powder	Paste		Powder	Paste	
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	9.4	10.6	20.9	13.1	28.8	16.3	12.5	16.5
1925	5.1	7.8	15.6	11.0	21.5	13.2	11.0	16.5
1926	3.8	8.0	14.6	11.0	18.4	11.5	11.0	14.7
1927	4.0	7.5	13.8		19.2	11.5	11.0	15.5
1928	4.4	6.8	14.1		27.0	11.3	10.9	15.5
1929	4.5	7.4	13.5		30.9	11.3	10.7	15.2
1930	4.5	8.1	14.5		35.2	13.0	13.0	15.2
1931	4.5	6.5	12.6		32.5	12.8	12.8	15.2
1932	4.5	6.0	11.6		30.1	12.8	12.8	16.3
1933	4.4	6.8	10.4		29.7	11.0	11.0	17.0
1934	4.2	7.8	10.8		29.5	12.6	12.6	15.1

[1] Average of monthly range.

Bureau of Agricultural Economics; compiled from the Oil, Paint, and Drug Reporter.

TABLE 534.—*Number of farmers' selling and buying associations, estimated membership, and estimated business, with percentages for geographic divisions, leading States, and commodity groups, 1933–34*

Geographic division, State, and commodity group	Associations listed, 1934 [1]		Membership, 1934 [2]		Estimated business, 1933–34 season	
Geographic division:	*Number*	*Percent*	*Number*	*Percent*	*1,000 dollars*	*Percent*
West North Central	4,794	44.0	1,137,700	36.1	369,120	27.0
East North Central	2,891	26.5	868,620	27.5	304,990	22.3
Pacific	812	7.5	181,950	5.8	227,431	16.7
Middle Atlantic	458	4.2	206,350	6.5	152,360	11.2
West South Central	580	5.3	194,910	6.2	90,187	6.6
Mountain	482	4.4	133,610	4.2	58,331	4.3
South Atlantic	425	3.9	139,440	4.4	57,931	4.2
East South Central	256	2.3	183,580	5.8	49,780	3.7
New England	202	1.9	109,840	3.5	54,870	4.0
Total	10,900	100.0	3,156,000	100.0	1,365,000	100.0
State:						
Minnesota	1,458	13.4	335,450	10.6	109,840	8.1
Illinois	786	7.2	271,900	8.6	123,150	9.0
Iowa	1,010	9.3	239,940	7.6	85,270	6.2
Wisconsin	1,140	10.5	183,960	5.8	62,460	4.6
California	447	4.1	85,440	2.7	162,994	11.9
New York	236	2.2	129,250	4.1	110,390	8.1
Missouri	508	4.7	166,500	5.3	52,870	3.9
Nebraska	529	4.8	165,210	5.2	45,160	3.3
Ohio	333	3.0	140,290	4.5	51,910	3.8
Michigan	356	3.3	136,900	4.3	34,270	2.5
Indiana	276	2.5	135,570	4.3	33,200	2.4
North Dakota	505	4.6	73,250	2.3	27,540	2.0
All others	3,316	30.4	1,092,340	34.7	465,946	34.2
Total	10,900	100.0	3,156,000	100.0	1,365,000	100.0
Commodity group:						
Dairy products	2,286	21.0	757,000	24.0	380,000	27.9
Grain [3]	3,178	29.2	600,000	19.0	285,000	20.9
Livestock	1,371	12.6	410,000	13.0	162,000	11.9
Fruits and vegetables	1,194	10.9	185,000	5.9	182,000	13.3
Cotton and products	250	2.3	200,000	6.3	100,000	7.3
Poultry and products	147	1.3	73,000	2.3	48,000	3.5
Wool and mohair	120	1.1	63,800	2.0	13,700	1.0
Tobacco	16	.1	46,600	1.5	5,500	.4
Nuts	57	.5	15,000	.5	11,500	.9
Forage crops	32	.3	7,600	.2	1,800	.1
Miscellaneous selling	401	3.7	106,000	3.4	23,500	1.7
Miscellaneous buying	1,848	17.0	692,000	21.9	152,000	11.1
Total	10,900	100.0	3,156,000	100.0	1,365,000	100.0

[1] Including independent local associations, federations, large-scale centralized associations, sales agencies, and independent service-rendering associations, but not including subsidiaries nor associations only renting unsold property.

[2] Includes members, contract members, shareholders, shippers, consignors, and patrons.

[3] Including dry beans and rice.

Farm Credit Administration.

TABLE 535.—*Farmers' selling and buying associations, estimated membership, and estimated business, by commodity groups, 1927–28 and 1929–30 to 1933–34*

Commodity group	Associations listed [1]						Estimated membership [2]						Estimated business					
	1928	1930	1931	1932	1933	1934	1928	1930	1931	1932	1933	1934	1927–28	1929–30	1930–31	1931–32	1932–33	1933–34
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Cotton and cotton products	125	199	261	267	274	250	140,000	150,000	190,000	240,000	200,000	200,000	97,000	110,000	130,000	69,000	42,000	100,000
Dairy products	2,479	2,458	2,391	2,392	2,293	2,286	600,000	650,000	725,000	740,000	724,000	757,000	620,000	680,000	620,000	520,000	390,000	380,000
Forage crops	15	11	8	31	33	32	2,000	1,000	1,000	7,500	7,800	7,600	1,400	1,200	1,200	1,750	1,500	1,800
Fruits and vegetables	1,269	1,384	1,386	1,347	1,268	1,194	215,000	218,000	182,000	180,000	170,000	185,000	300,000	320,000	319,000	283,000	200,000	182,000
Grain [3]	3,455	3,448	3,448	3,500	3,131	3,178	900,000	810,000	775,000	705,000	600,000	600,000	680,000	690,000	621,000	450,000	280,000	285,000
Livestock	2,012	2,153	2,014	1,885	1,575	1,371	450,000	465,000	[4] 400,000	450,000	440,000	410,000	320,000	320,000	300,000	260,000	182,000	162,000
Nuts	40	44	71	70	65	57	15,000	14,000	17,000	18,000	17,500	15,000	14,600	14,600	13,000	8,600	8,500	11,500
Poultry and poultry products	90	157	160	172	154	147	50,000	67,000	82,000	88,000	78,000	73,000	40,000	79,400	86,000	72,000	53,000	48,000
Tobacco	16	15	13	21	20	16	15,000	75,000	40,000	54,000	60,000	46,600	22,000	6,800	7,000	10,000	6,500	5,500
Wool and mohair	99	131	136	134	115	120	25,000	40,000	64,000	62,000	62,000	63,800	7,000	10,800	26,000	21,000	9,000	13,700
Miscellaneous selling	595	546	474	436	424	401	190,000	140,000	132,000	122,500	98,000	106,000	70,000	77,200	61,800	48,650	27,000	23,500
Miscellaneous buying	1,205	1,454	1,588	1,645	1,648	1,848	398,000	470,000	392,000	533,000	542,700	692,000	128,000	190,000	215,000	181,000	140,500	152,000
Total	11,400	12,000	11,950	11,900	11,000	10,900	3,000,000	3,100,000	[4] 3,000,000	[4] 3,200,000	3,000,000	3,156,000	2,300,000	2,500,000	2,400,000	1,925,000	1,340,000	1,365,000

[1] Including independent local associations, federations, large-scale centralized associations, sales agencies, and independent service-rendering associations, but not including subsidiaries, contact locals, nor associations only renting unsold property.

[2] Includes members, contract members, shareholders, shippers, consignors, and patrons.

[3] Including dry beans and rice.

[4] In the light of information received subsequent to the original publication of these data, the estimates are being revised.

Farm Credit Administration.

TABLE 536.—*Associations marketing dairy products: Number listed and estimated business, 1925–33*

Year and State	Butter-making		Cheese-making		Milk-distributing		Milk-bargaining		Miscellaneous		Total	
	Listed	Estimated business	Listed	Estimated business	Listed	Estimated business	Listed	Estimated business	Listed [1]	Estimated business [2]	Listed	Estimated business
	Number	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*
1925	1,400	222,000	600	25,000	[3] 140	160,000	40	125,000	17	3,000	2,197	535,000
1926	1,390	230,000	751	32,000	119	135,000	40	192,000	179	11,000	2,479	600,000
1928	1,400	245,000	740	30,000	114	150,000	47	200,000	199	15,000	2,500	640,000
1929	1,385	264,804	717	27,931	111	138,694	50	229,251	195	19,320	2,458	680,000
1930	1,366	219,870	731	21,790	101	142,130	50	227,460	187	28,750	2,435	640,000
1931	1,379	175,290	712	15,680	109	112,090	59	206,460	133	10,480	2,392	520,000
1932	1,357	133,860	645	11,840	108	90,410	68	148,820	115	5,070	2,293	390,000
1933	1,359	139,290	637	14,090	105	81,000	80	131,000	105	14,620	2,286	380,000
Leading States, 1933:												
New York	3	100	13	400	9	54,500	6	19,400	1	-------	32	74,400
Minnesota	594	42,560	22	540	-------	-------	-------	-------	12	6,000	628	49,100
Wisconsin	224	23,690	521	9,420	9	2,580	6	4,790	6	700	766	41,180
Illinois	11	1,450	28	460	5	1,280	11	23,370	19	3,000	74	29,560
Iowa	246	24,830	-------	-------	1	40	8	1,630	1	-------	256	26,500
Pennsylvania	11	470	6	100	9	890	2	23,370	2	90	30	24,920
California	12	10,700	-------	-------	4	1,670	6	7,300	2	380	24	20,050
All others	258	35,490	47	3,170	68	20,040	41	51,140	62	4,450	476	114,290

[1] Including federations, sales agencies, warehouse associations, associations manufacturing ice cream, milk powder, etc.

[2] Not including amounts reported by federations, sales agencies, etc.

[3] Including associations marketing cream. In subsequent years these were included among the miscellaneous associations.

Farm Credit Administration.

TABLE 537.—*Butter and cheese made by farmers' associations and percentages of total production, 1926–33*

Year	Butter			Cheese		
	Associations reporting	Estimated quantity [1]	Total production	Associations reporting	Estimated quantity [1]	Total production
	Number	*1,000 pounds*	*Percent*	*Number*	*1,000 pounds*	*Percent*
1926	1,480	497,961	34.3	792	139,113	32.5
1927	-------	[2] 500,000	34.4	-------	[2] 125,000	30.7
1928	1,517	520,592	35.0	788	132,955	30.4
1929	1,511	540,688	33.3	758	118,850	24.6
1930	1,464	563,909	35.4	778	129,545	25.9
1931	1,473	599,926	36.0	774	129,671	26.3
1932	1,484	608,569	35.9	756	125,076	25.8
1933	1,486	636,705	36.7	735	120,520	24.2

[1] Including quantities made by associations other than those listed as primarily engaged in the manufacture of the specified product.

[2] Estimated.

Farm Credit Administration.

TABLE 538.—*Cooperative citrus-fruit marketings and such marketings as a percentage of production [1] for specified areas, 1920–21 to 1933–34*

[Revised Jan. 1, 1935]

Marketing Season	Packed boxes handled by associations in—							
	California and Arizona		Florida		Texas		United States [2]	
	Boxes	*Percent* [1]	*Boxes*	*Percent* [1]	*Boxes*	*Percent* [1]	*Boxes*	*Percent* [1]
1920–21	21,806,253	77.9	3,905,841	25.0	----------	----------	25,712,094	58.8
1921–22	12,847,455	69.6	3,805,942	24.5	----------	----------	16,755,850	49.1
1922–23	19,810,048	78.5	5,205,510	27.8	----------	----------	25,253,806	57.1
1923–24	21,671,344	68.6	5,548,241	24.9	26,570	37.4	27,246,155	50.2
1924–25	17,635,860	73.3	6,375,759	31.4	65,690	29.9	24,077,309	53.9
1925–26	23,011,773	71.4	4,193,316	22.6	38,624	18.7	27,243,713	53.2
1926–27	25,427,062	69.5	4,860,948	24.2	95,053	23.9	30,383,063	53.0
1927–28	21,810,825	73.8	3,876,577	21.6	124,115	21.1	25,843,253	53.3
1928–29	32,129,643	66.9	7,280,156	27.7	262,459	30.6	39,716,747	52.6
1929–30	22,930,811	79.8	5,549,105	30.1	453,043	25.5	28,967,192	58.7
1930–31	31,880,555	70.7	10,274,883	29.2	363,430	26.5	42,584,511	52.0
1931–32	35,704,141	79.7	7,322,602	29.5	548,237	18.4	43,708,297	59.9
1932–33	34,329,255	80.2	6,871,789	24.7	249,779	14.8	41,552,235	57.1
1933–34	35,330,130	84.7	5,570,867	21.3	406,537	28.9	[3] 41,341,342	59.5

[1] Department of Agriculture production data for 1920–21 to 1923–24, inclusive, Yearbook of Agriculture, 1934, table 194; Department of Agriculture data "Sold or for sale" for 1924–25 to 1933–34, inclusive.
[2] Including 1 association in Alabama and 1 in Louisiana.
[3] Preliminary.

Farm Credit Administration.

TABLE 539.—*Livestock handled, sales, and purchases, by terminal-market cooperative sales agencies, 1919–34*

Year	Animals received [1]					Animals purchased	
	Associations listed	Cattle and calves	Hogs	Sheep	Total [2]	Associations purchasing	Animals
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
1919	4	63,876	381,127	23,940	563,383	2	8,504
1920	4	85,313	536,380	29,676	748,255	2	6,550
1921	6	163,361	912,095	103,101	1,310,628	3	42,032
1922	16	736,982	3,414,016	352,861	4,727,056	4	86,350
1923	23	1,409,322	7,732,437	733,552	9,933,445	8	103,928
1924	26	1,893,326	9,239,070	1,202,616	11,382,304	14	242,039
1925	28	1,881,241	7,377,084	1,350,311	10,666,069	18	288,150
1926	27	2,003,014	6,687,296	1,581,882	10,333,307	18	328,016
1927	28	1,678,094	7,149,561	1,598,465	10,426,120	21	280,808
1928	28	1,751,599	8,483,413	1,686,889	11,921,901	18	325,267
1929	28	1,904,066	8,054,184	2,093,136	12,051,386	20	[3] 577,646
1930	30	2,088,411	7,259,731	2,609,604	11,957,746	22	723,422
1931	34	2,216,507	7,169,955	3,028,503	12,414,965	23	633,855
1932 [4]	38	2,120,480	6,352,022	3,306,425	11,778,927	27	567,183
1933 [5]	41	2,315,000	7,575,000	3,390,000	13,280,000	28	544,161
1934 [6]	41	2,590,000	6,295,000	3,339,000	12,225,000	26	461,000

[1] Includes some animals sold for yard traders.
[2] Includes animals not segregated by kind.
[3] Includes 114,757 sheep, valued at $906,040, from producers to feeders.
[4] Estimates based on reports from 36 of the 38 associations.
[5] Estimates based on reports from 39 of the 41 associations.
[6] Estimates based on reports from 35 of the 41 associations.

TABLE 539.—*Livestock handled, sales, and purchases, by terminal-market cooperative sales agencies, 1919–34*.—Continued

Year	Total animals handled		Value of sales [6]	Value of purchases	Value of business handled	
	Associations listed	Animals			Associations listed	Total [7]
	Number	*Number*	*Dollars*	*Dollars*	*Number*	*Dollars*
1919	4	571, 887	35, 178, 255	622, 335	6	35, 800, 590
1920	4	754, 805	37, 419, 935	458, 824	6	37, 878, 759
1921	6	1, 352, 660	35, 309, 401	894, 972	6	36, 204, 373
1922	16	4, 813, 406	101, 818, 588	3, 069, 638	18	104, 888, 226
1923	23	10, 037, 373	191, 954, 106	4, 631, 630	23	196, 904, 508
1924	26	11, 624, 343	231, 372, 776	5, 222, 121	24	236, 594, 897
1925	28	10, 954, 219	271, 797, 282	7, 923, 372	24	279, 720, 654
1926	27	10, 661, 323	278, 900, 462	8, 249, 106	24	293, 249, 470
1927	28	10, 793, 681	145, 202, 942	3, 036, 904	28	274, 209, 285
1928	28	12, 339, 000	279, 674, 261	8, 741, 163	28	289, 152, 931
1929	28	[2] 12, 755, 647	302, 894, 934	[3] 11, 627, 701	28	314, 522, 635
1930	30	12, 857, 965	263, 679, 996	10, 008, 169	30	273, 688, 165
1931	34	[8] 13, 306, 743	183, 288, 867	6, 915, 387	34	[8] 190, 769, 836
1932 [4]	38	[8] 12, 763, 652	119, 373, 515	6, 091, 102	38	[8] 127, 813, 049
1933 [5]	41	[8] 14, 190, 000	120, 141, 418	4, 656, 533	41	[8] 138, 434, 000
1934 [9]	41	[8] 13, 100, 000	126, 700, 000	4, 100, 000	41	[8] 148, 000, 000

[2] Includes animals not segregated by kind.
[3] Includes 114,757 sheep, valued at $906,040, from producers to feeders.
[4] Estimates based on reports from 36 of the 38 associations.
[5] Estimates based on reports from 39 of the 41 associations.
[6] Includes sales for yard traders.
[7] Includes business not classified as sales or purchases.
[8] Includes animals handled in the country.
[9] Estimates based on reports from 35 of the 41 associations.

Farm Credit Administration.

TABLE 540.—*Freight tonnage originating on railways in the United States, 1927–33* [1]

Commodity	Calendar year						
	1927	1928	1929	1930	1931	1932	1933 [2]
FARM PRODUCTS							
Animal and animal products:	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
Animals live:							
Horses and mules	541	577	553	440	316	230	281
Cattle and calves	8, 636	7, 976	7, 310	6, 785	6, 097	4, 896	4, 496
Sheep and goats	1, 296	1, 362	1, 387	1, 385	1, 343	1, 085	1, 008
Hogs	5, 369	5, 871	5, 534	4, 902	4, 501	3, 885	3, 608
Packing-house products:							
Fresh meats	2, 986	2, 935	3, 007	2, 928	2, 933	2, 724	2, 951
Hides and leather	1, 010	914	913	847	782	655	734
Other packing-house products	1, 957	1, 461	1, 414	1, 165	1, 140	1, 052	992
Total	5, 953	5, 310	5, 334	4, 940	4, 855	4, 431	4, 677
Eggs	651	635	588	612	582	424	422
Butter and cheese	747	754	793	807	768	735	756
Poultry	407	407	418	419	416	382	402
Wool	356	394	414	354	388	271	336
Other animals and products	2, 054	2, 348	2, 576	2, 485	2, 366	1, 716	1, 665
Total animals and animal products	26, 010	25, 634	24, 907	23, 129	21, 632	18, 055	17, 651
Vegetable products:							
Cotton	4, 182	3, 772	3, 940	3, 032	2, 432	2, 777	3, 374
Fruits and vegetables	12, 029	12, 947	12, 875	12, 589	11, 906	9, 366	8, 925
Potatoes	4, 728	4, 511	4, 425	4, 332	4, 114	3, 418	3, 466
Grain and grain products:							
Grain:							
Wheat	26, 237	26, 950	27, 019	25, 466	26, 228	19, 120	16, 561
Corn	13, 162	17, 045	15, 258	13, 986	10, 728	9, 544	12, 310
Oats	5, 518	5, 888	5, 713	5, 184	3, 970	3, 399	3, 353
Other grain	5. 216	5, 506	4, 477	4, 045	2, 924	2, 229	2, 995
Grain products:							
Flour and meal	10, 027	10, 754	10, 627	10, 546	10, 067	9, 319	8, 998
Other mill products	10, 179	10, 580	10, 821	10, 610	8, 783	6, 629	6, 779
Total	70, 339	76, 723	73, 915	69, 837	62, 700	50, 240	50, 936

See footnotes at end of table on page 742.

TABLE 540.—*Freight tonnage originating on railways in the United States, 1927–33* [1]—Continued

Commodity	Calendar year						
	1927	1928	1929	1930	1931	1932	1933 [2]
FARM PRODUCTS—continued							
Vegetable products—Contd.	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
Hay, straw, and alfalfa	4,468	3,999	3,697	3,494	2,174	1,569	1,476
Sugar, sirup, glucose, and molasses	5,584	5,604	5,858	5,659	5,142	4,286	4,779
Tobacco	1,053	945	989	1,008	816	642	680
Other vegetable products	18,469	16,686	15,502	16,436	13,346	12,405	12,845
Total vegetable products	120,852	125,187	121,201	116,387	102,630	85,203	86,481
Canned goods (food products)	4,204	4,805	5,029	4,751	3,954	3,167	3,308
Total farm products	151,066	155,626	151,137	144,267	128,216	106,425	107,440
OTHER FREIGHT							
Products of mines	713,731	696,583	737,879	642,537	501,903	362,226	395,065
Products of forests	99,391	96,737	94,855	69,366	43,024	26,109	33,165
Manufactures	279,407	300,043	319,177	267,353	198,270	136,229	148,922
Merchandise, all l. c. l. freight	38,432	36,954	36,043	29,667	22,773	15,234	14,351
Total tonnage	1,282,027	1,285,943	1,339,091	1,153,190	894,186	646,223	698,943

[1] Weight as delivered at original shipping point. In the case of freight transported over several different railways, each ton is counted only when transported by the first railway. Some traffic, reshipped under new billing without benefit of transit privileges or proportional rates, may be counted more than once.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Interstate Commerce Commission. Figures for earlier years appear in previous issues of the Yearbook.

TABLE 541.—*Index numbers of freight rates on livestock, wheat, and cotton, 1913–14 to 1934–35* [1]

Year beginning July	Livestock											Wheat	Cotton
	Cattle				Hogs			Sheep			Total		
	Western district	Eastern district	Southern district	United States	Western district	Eastern district	United States	Western district	Eastern district	United States			
1913–14	100	100	100	100	100	100	100	100	100	100	100	100	100
1914–15	100	104	100	100	99	102	100	99	102	99	100	101	100
1915–16	100	108	99	101	99	107	101	98	105	99	101	100	100
1916–17	100	113	98	102	99	116	102	98	112	100	102	101	100
1917–18	101	116	98	103	100	122	104	99	129	103	103	101	103
1918–19	126	158	120	129	124	169	132	118	167	126	130	128	133
1919–20	128	157	120	131	124	169	132	119	167	127	131	128	136
1920–21	166	207	148	170	161	222	172	152	225	164	170	164	171
1921–22	164	211	147	169	160	230	173	148	226	160	169	160	176
1922–23	155	197	137	160	153	218	164	137	199	147	160	150	164
1923–24	154	201	136	159	153	217	164	137	200	147	160	150	164
1924–25	152	199	136	158	151	214	163	137	200	146	158	150	166
1925–26	152	199	136	158	150	214	161	135	200	145	157	150	166
1926–27	152	199	136	157	150	214	161	134	200	144	157	150	166
1927–28	151	201	136	157	150	214	161	134	200	144	157	149	165
1928–29	151	198	136	157	150	205	160	135	189	143	156	148	164
1929–30	151	195	136	156	150	199	159	135	181	142	155	148	163
1930–31	151	190	136	156	150	198	158	135	183	142	155	146	159
1931–32	157	187	136	160	149	198	158	135	185	143	155	139	[2] 139
1932–33	163	186	136	165	148	199	157	134	185	142	156	146	[2] 106
1933–34	161	186	136	163	147	199	157	134	185	142	155	146	[2] 95
1934–35 [3]	155	186	136	158	148	199	157	134	185	142	154	146	94

[1] Based on rates in effect through Mar. 4, 1935, except cotton which is through Mar. 7.
[2] To preserve comparability, where alternative rates depending on loading were established during these years, rate for highest weight to which shippers could load without having cotton compressed at own expense was used in computation of index.
[3] Preliminary.

Bureau of Agricultural Economics.
These relatives are based on the average of the rates in effect during the crop year. Rates in effect in 1913=100. For points of origin and destination, see Yearbook, 1926, tables 550 and 551.

TABLE 542.—*Cooperative extension workers:* [1] *Number employed, United States, June 30, 1933, and June 30, 1934*

State or Territory	County agricultural agents and assistants [2]		County home demonstration agents and assistants		County club agents and assistants		Administrators and supervisors		Subject-matter specialists		Total	
	1933	1934 [2]	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934
Alabama	95	95	59	70	------	------	12	13	12	23	178	201
Alaska	------	------	------	------	------	------	3	2	1	1	4	3
Arizona	17	15	5	5	------	------	3	3	7	7	32	30
Arkansas	87	81	57	72	------	------	15	15	16	12	175	180
California	86	95	30	26	------	------	12	16	27	24	155	161
Colorado	26	47	6	7	------	------	5	4	13	21	50	79
Connecticut	10	10	8	8	13	13	5	4	24	24	60	59
Delaware	3	3	3	3	3	3	3	3	6	5	18	17
Florida	47	49	34	33	------	------	11	11	15	16	107	109
Georgia	165	169	100	100	------	------	9	15	10	27	284	311
Hawaii	6	6	6	6	------	------	3	2	4	4	19	18
Idaho	20	31	6	6	2	2	7	6	17	19	52	64
Illinois	109	98	33	35	4	3	13	13	30	27	189	176
Indiana	81	91	11	10	5	5	12	19	33	37	142	162
Iowa	103	136	19	18	2	1	17	16	62	58	203	229
Kansas	79	105	26	26	1	1	13	19	31	39	150	190
Kentucky	86	123	29	30	------	------	18	24	35	28	168	205
Louisiana	75	74	44	45	------	------	16	15	17	15	152	149
Maine	15	15	14	14	7	7	5	5	12	11	53	52
Maryland	31	31	26	25	------	------	5	5	33	34	95	95
Massachusetts	20	17	16	14	26	25	8	8	22	22	92	86
Michigan	66	67	5	4	9	9	16	20	44	41	140	141
Minnesota	58	81	13	14	15	2	12	12	25	28	123	137
Mississippi	98	102	64	71	------	------	18	18	24	24	204	215
Missouri	71	138	15	15	------	------	8	8	19	21	113	182
Montana	28	37	9	9	------	------	5	5	15	14	57	65
Nebraska	46	92	14	15	1	2	9	9	24	30	94	148
Nevada	12	13	5	4	------	------	3	3	3	2	23	22
New Hampshire	11	11	10	10	13	13	5	5	13	13	52	52
New Jersey	21	24	15	17	7	7	4	4	17	18	64	70
New Mexico	19	21	8	7	------	------	6	6	5	7	38	41
New York	73	84	44	44	38	41	10	11	87	79	252	259
North Carolina	108	118	93	84	------	------	15	15	21	25	237	242
North Dakota	23	63	4	4	------	1	6	7	15	12	48	87
Ohio	70	84	21	21	11	11	12	12	52	41	166	169
Oklahoma	105	125	74	83	------	------	16	15	13	18	208	241
Oregon	34	49	7	7	8	8	7	8	12	14	68	86
Pennsylvania	73	73	46	45	------	------	12	13	42	41	173	172
Puerto Rico	------	------	------	------	------	------	------	------	1	1	1	1
Rhode Island	3	3	3	3	3	3	3	3	7	7	19	19
South Carolina	77	71	55	54	------	------	15	14	13	19	160	158
South Dakota	17	73	14	13	4	3	7	12	15	7	57	108
Tennessee	88	104	43	44	------	------	12	12	19	22	162	182
Texas	226	264	149	165	------	------	26	27	25	25	426	481
Utah	22	25	7	6	------	------	5	5	14	13	48	49
Vermont	14	14	11	11	11	11	5	5	11	10	52	51
Virginia	101	129	48	50	------	------	17	17	37	34	203	230
Washington	39	56	11	10	3	3	3	3	10	10	66	82
West Virginia	49	47	25	21	8	7	8	9	19	29	109	113
Wisconsin	47	61	5	6	8	7	11	12	42	45	113	131
Wyoming	20	24	7	6	------	------	4	4	8	7	39	41
Total	2,780	3,344	1,357	1,396	202	188	475	512	1,079	1,111	5,893	6,551

[1] Includes both white and Negro extension workers.
[2] Increase due mainly to Agricultural Adjustment work.

Extension Service.

TABLE 543.—*Cooperative extension work: Projects and percentage of agents' and specialists'* [1] *time devoted to each, 1926–33*

Project	1926	1927	1928	1929	1930	1931	1932	1933
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Soils	5.3	4.8	5.1	5.1	[2]			
Farm crops	13.1	12.4	11.5	11.6	15.2	13.8	12.1	14.3
Horticulture	7.3	7.1	7.3	7.0	8.7	9.4	10.3	9.8
Forestry	.7	.9	1.0	1.0	.9	.9	.9	.9
Animal husbandry	7.5	8.2	7.8	7.6	6.5	6.7	6.8	5.5
Dairy husbandry	7.1	7.9	8.7	8.6	7.7	6.7	5.8	4.7
Poultry husbandry	9.0	8.8	8.1	7.9	7.6	6.8	6.5	5.8
Rural engineering	3.6	3.4	3.3	3.2	3.3	3.1	2.9	2.6
Rodents and insects	1.7	1.5	1.3	1.1	1.3	1.4	1.6	1.3
Agricultural economics	4.0	4.1	4.0	4.3	6.2	6.8	7.4	8.5
Foods and nutrition	7.2	7.1	7.0	7.5	7.0	7.1	8.0	8.0
Child training and care					[3] 6	.6	.7	.6
Clothing	7.1	6.8	6.8	6.9	6.7	6.6	6.4	6.3
Home management	1.5	1.5	1.7	2.2	2.1	2.0	2.0	1.7
House furnishings	1.8	2.0	2.4	2.6	2.6	2.7	2.7	2.5
Home health and sanitation	1.2	1.2	1.2	1.2	1.3	1.2	1.0	1.1
Community activities	5.9	6.0	5.8	5.9	4.0	5.3	5.0	4.7
Formulation of the extension program					[3] 3.7	3.7	4.4	4.4
Organization					[3] 7.1	7.2	8.0	8.4
Miscellaneous	16.0	16.3	17.0	16.3	7.5	8.0	7.5	8.9

[1] Only field work of specialists as reported by county extension agents is included.
[2] Since 1929 the percentage of time devoted to "soils" has been included in "farm crops."
[3] Prior to 1930 the information on "child training and care", "formulation of the extension program", and "organization" was included in "miscellaneous."

Extension Service.

TABLE 544.—*Extension activities and accomplishments, as reported by all county extension agents, 1928–33*

Total activity or accomplishment relating to extension	1928	1929	1930	1931	1932	1933
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Farm visits made	1,506,510	1,633,154	1,758,743	1,822,272	1,831,319	1,693,319
Home visits made	432,433	489,294	546,208	602,885	633,784	658,095
Office calls received	3,687,570	3,991,725	4,317,565	5,156,854	5,202,539	8,007,508
Telephone calls received	2,556,899	2,710,723	3,015,707	3,063,569	3,208,761	3,675,176
News articles or stories published	371,331	423,600	449,854	490,507	491,687	469,122
Individual letters written	4,510,657	4,712,940	4,501,988	4,551,924	4,412,223	4,569,338
Different circular letters prepared			214,561	274,422	247,536	250,480
Bulletins distributed	5,608,604	6,345,488	6,657,561	8,203,294	8,216,890	8,214,816
Radio talks made			4,148	5,539	8,133	7,881
Events at which exhibits were shown	8,999	9,826	20,476	19,663	22,341	22,510
Training meetings held for local leaders	42,902	41,604	42,903	52,510	55,334	60,021
Method demonstration meetings held	437,993	486,398	402,458	461,793	491,060	474,858
Meetings at result demonstrations			66,368	70,098	66,525	60,065
Tours conducted			8,772	9,851	10,699	10,646
Achievement days held			14,720	15,450	16,759	17,527
Encampments held	2,781	2,921	3,762	3,685	3,335	2,468
All meetings held	683,305	771,321	750,379	851,197	906,373	878,897
Attendance at all meetings held	21,951,317	24,878,236	25,605,485	30,287,348	31,495,656	30,139,724
Result demonstrations conducted	851,526	929,744	934,182	1,090,011	1,226,082	1,378,315
Voluntary local leaders assisting with—						
Adult extension	179,559	201,882	233,043	278,633	311,604	327,960
Junior extension	58,258	71,636	85,344	98,394	105,254	104,503
Adult home demonstration groups			34,959	38,358	41,131	43,108
Members of such groups			646,340	760,171	803,203	859,967

Extension Service.

TABLE 545.—*4-H club work: Number of clubs, enrollment, projects completed, etc., 1927–33*

Item	1927	1928	1929	1930	1931	1932	1933
Junior clubs	44,188	46,671	52,180	56,180	60,781	59,081	57,400
Different boys enrolled	249,553	270,534	303,509	333,197	360,653	381,573	378,143
Different girls enrolled	370,159	393,406	452,587	489,517	529,721	544,039	543,822
Total enrollment	619,712	663,940	756,096	822,714	890,374	925,612	921,965
Different boys completing [1]	153,324	175,069	201,910	222,472	252,328	271,339	266,601
Different girls completing [1]	245,783	272,510	305,577	331,873	376,915	399,383	399,253
Total completing	399,107	447,579	507,487	554,345	629,243	670,722	665,854
Projects started	1,330,239	1,466,584	1,614,149	1,535,619	1,693,866	1,765,480	1,762,855
Projects completed (total) [1]	776,029	882,795	995,262	971,308	1,114,065	1,205,108	1,185,563
Cereals	25,789	26,997	29,197	35,380	44,595	47,414	42,086
Legumes and forage	5,253	6,137	7,559	7,902	10,582	12,757	10,921
Potatoes, cotton, and other special crops	25,228	36,475	40,380	45,010	45,883	42,406	41,046
Horticulture	88,922	112,296	124,459	123,751	156,392	178,943	173,898
Forestry	2,192	2,719	3,852	5,379	7,877	11,416	11,938
Rural engineering				6,701	7,168	7,298	8,045
Dairy	23,076	29,468	37,218	36,554	38,862	38,670	35,873
Animal husbandry	44,341	48,233	54,227	57,790	68,547	78,590	78,211
Poultry	56,756	56,900	60,020	61,519	62,058	66,124	67,901
Agricultural economics	4,925	8,361	7,379	6,448	6,558	6,696	7,423
Foods	142,302	167,058	182,877	193,242	226,390	247,914	252,555
Nutrition	54,451	62,790	65,652				
Child training and care				[2] 4,508	5,360	6,142	2,706
Clothing	146,181	162,291	190,249	209,656	231,749	233,341	233,701
Home management	13,822	16,309	16,237	17,472	21,000	24,450	20,278
House furnishings	30,024	36,274	40,999	49,571	52,753	62,435	64,473
Home health and sanitation	56,352	59,342	77,932	67,810	79,812	84,519	78,091
Miscellaneous	56,415	51,145	57,025	42,615	48,479	55,993	56,417

[1] Different boys and girls completing is the sum of the individual boys and girls completing 1 or more projects in contrast to project completions which is the sum of all the projects completed by all boys and girls.

[2] Prior to 1930, the work on "child training and care" was included in "miscellaneous."

Extension Service.

TABLE 546.—*Imports and price per pound of raw silk and production, imports and price per pound of rayon yarn, United States, 1924–34*

Calendar year	Raw silk		Rayon yarn			
	Net imports [1]	Average price [2]	Production	Net imports [3]	Average price [4]	
					150 A denier	300 A denier
	1,000 pounds	*Dollars*	*1,000 pounds*	*1,000 pounds*	*Dollars*	*Dollars*
1924	59,626	5.917	36,330	6,569	2.113	1.871
1925	76,003	6.341	51,900	12,363	2.004	1.754
1926	76,870	5.937	62,690	13,918	1.810	1.603
1927	85,036	5.100	75,555	17,740	1.489	1.289
1928	87,172	4.859	97,230	15,113	1.500	1.300
1929	96,848	[5] 4.777	121,280	20,318	1.246	1.073
1930	80,581	[5] 3.173	126,805	6,009	1.059	.900
1931	87,540	[5] 2.233	150,880	3,460	.758	.636
1932	74,841	[5] 1.473	134,810	2,501	.660	.538
1933	70,361	[5] 1.536	208,530	6,157	.609	.503
1934 [6]	60,757	[5] 1.200	210,330	[7] 875	.587	.487

[1] Net imports are imports minus reexports; beginning 1934, imports for consumption.

[2] Average of monthly average prices of Japanese Kansai, No. 1, except as noted.

[3] Net imports in 1924 are imports minus reexports; 1925–33 figures are imports minus exports and reexports; 1934, exports minus imports for consumption.

[4] Average of monthly average prices of domestic yarn, first quality. The count indicates the number of deniers or ½-decigram units, in weight, of a standard length of 450 meters. Since the standard is based on an arbitrary fixed length and a variable weight, the finer the yarn the smaller the count; 150 denier count, a size commonly used, is fine and 300 denier count is coarse.

[5] Average of monthly average prices of Japanese Best, No. 1 x 13–15.

[6] Preliminary.

[7] Net exports.

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Compiled from annual issues of Commerce and Navigation of the United States Department of Commerce, except production of rayon yarn which is from the Textile Organon, a publication of the Tubize Chatillon Corporation. Prices are from bulletins of the U. S. Bureau of Labor statistics.

TABLE 547.—*Gold value of the dollar, and dollar value of gold in London,*[1] *April 1933–March 1935*

Date	Gold value of the dollar	Dollar value of gold per ounce		Date	Gold value of the dollar	Dollar value of gold per ounce		Date	Gold value of the dollar	Dollar value of gold per ounce	
		Actual	Relative			Actual	Relative			Actual	Relative
1933	*Cents*	*Dollars*		1933	*Cents*	*Dollars*		1934	*Cents*	*Dollars*	
Apr. 1–15 [2]	100.0	20.67	100.0	Dec. 4	64.1	32.23	155.9	Aug. 7	59.3	34.83	168.5
Apr. 3	100.2	20.62	99.8	Dec. 11	63.2	32.73	158.3	Aug. 13	58.6	35.25	170.5
Apr. 10	100.1	20.64	99.9	Dec. 18	63.5	32.54	157.4	Aug. 20	58.8	35.18	170.2
Apr. 17	100.0	20.67	100.0	Dec. 27	63.7	32.43	156.9	Aug. 27	58.6	35.28	170.7
Apr. 24	90.2	22.92	110.9					Sept. 3	58.5	35.32	170.9
May 1	85.9	24.07	116.4	1934				Sept. 10	58.7	35.22	170.4
May 8	84.9	24.35	117.8	Jan. 2	62.9	32.88	159.1	Sept. 17	58.8	35.18	170.2
May 15	84.8	24.39	118.0	Jan. 8	64.1	32.24	156.0	Sept. 24	58.8	35.18	170.2
May 22	86.5	23.89	115.6	Jan. 15	62.9	32.86	159.0	Oct. 1	58.9	35.07	169.7
May 29	84.1	24.59	119.0	Jan. 22	62.0	33.33	161.2	Oct. 8	59.0	35.05	169.6
June 6	83.4	24.78	119.9	Jan. 29	62.5	33.06	159.9	Oct. 15	58.9	35.07	169.7
June 12	80.9	25.54	123.6	Feb. 5	59.9	34.51	167.0	Oct. 22	59.1	34.99	169.3
June 19	81.6	25.34	122.6	Feb. 12	59.9	34.51	167.0	Oct. 29	59.3	34.86	168.7
June 26	79.6	25.95	125.5	Feb. 19	59.8	34.56	167.2	Nov. 5	59.3	34.83	168.5
July 3	75.1	27.54	133.2	Feb. 26	59.6	34.67	167.7	Nov. 12	59.4	34.82	168.5
July 10	69.3	29.83	144.3	Mar. 5	59.5	34.72	168.0	Nov. 19	59.4	34.80	168.4
June 17	69.3	29.82	144.3	Mar. 12	59.5	34.74	168.1	Nov. 26	59.4	34.79	168.3
June 24	71.6	28.88	139.7	Mar. 19	59.5	34.74	168.1	Dec. 3	59.4	34.79	168.3
July 31	74.3	27.81	134.5	Mar. 26	59.4	34.77	168.2	Dec. 10	59.5	34.75	168.1
Aug. 8	74.0	27.92	135.1	Apr. 3	59.5	34.75	168.1	Dec. 17	59.4	34.77	168.2
Aug. 14	74.7	27.68	133.9	Apr. 9	59.4	34.77	168.2	Dec. 24	59.5	34.76	168.2
Aug. 21	73.2	28.23	136.6	Apr. 16	59.5	34.75	168.1	Dec. 31	59.4	34.81	168.4
Aug. 28	71.2	29.04	140.5	Apr. 23	59.2	34.92	168.9				
Sept. 5	69.5	29.74	143.9	Apr. 30	59.2	34.89	168.8	1935			
Sept. 11	70.6	29.28	141.7	May 7	59.3	34.84	168.6	Jan. 7	59.1	35.00	169.3
Sept. 18	65.8	31.41	152.0	May 14	59.5	34.75	168.1	Jan. 14	59.4	34.79	168.3
Sept. 25	65.6	31.49	152.3	May 22	59.4	34.82	168.5	Jan. 21	59.6	34.66	167.7
Oct. 2	64.8	31.92	154.4	May 28	59.4	34.79	168.3	Jan. 28	60.5	34.16	165.3
Oct. 9	66.6	31.04	150.1	June 4	59.5	34.75	168.1	Feb. 4	59.7	34.61	167.4
Oct. 16	71.8	28.78	139.2	June 11	59.3	34.87	168.7	Feb. 11	59.5	34.74	168.1
Oct. 23	69.3	29.83	144.3	June 18	59.4	34.78	168.3	Feb. 18	59.5	34.75	168.1
Oct. 30	65.6	31.52	152.5	June 25	59.4	34.77	168.2	Feb. 25	59.2	34.94	169.0
Nov. 6	64.3	32.16	155.8	July 2	59.4	34.79	168.3	Mar. 4	58.6	35.29	170.7
Nov. 13	62.3	33.19	160.6	July 9	59.4	34.78	168.3	Mar. 11	58.7	35.22	170.4
Nov. 20	61.2	33.78	163.4	July 16	59.5	34.76	168.2	Mar. 18	59.2	34.89	168.8
Nov. 27	63.1	32.75	158.4	July 23	59.5	34.76	168.2	Mar. 25	59.5	34.76	168.2
				July 30	59.4	34.77	168.2				

[1] Based on the open market price of gold in London, converted at the dollar exchange rate at the "fixing of the gold price" each day at 11 a. m. (London time).

[2] Par.

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